

Exhibit A

UNITED STATES BANKRUPTCY COURT
SOUTHERN DISTRICT OF NEW YORK

In re:

BERNARD L. MADOFF INVESTMENT
SECURITIES LLC,
Debtor,

Adv. Pro. No. 08-01789 (SMB)

SIPA LIQUIDATION

(Substantively Consolidated)

IRVING H. PICARD, Trustee for the Liquidation of
Bernard L. Madoff Investment Securities LLC,

Plaintiff,

Adv. Pro. No. 09-1182 (SMB)

v.

J. EZRA MERKIN, GABRIEL CAPITAL, L.P.,
ARIEL FUND LTD., ASCOT PARTNERS, L.P.,
GABRIEL CAPITAL CORPORATION,

Defendants.

**INITIAL EXPERT REPORT OF
DR. STEVE POMERANTZ**

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1. This report is offered pursuant to Federal Rule of Civil Procedure 26(a)(2) and is authored by Dr. Steve Pomerantz, president of Steve Pomerantz LLC (collectively, “Pomerantz”), an economic and financial consulting firm located in New York, NY. Pomerantz was retained in this matter by Irving H. Picard, Trustee (“Trustee”) for the substantively consolidated Securities Investor Protection Act (“SIPA”) liquidation of Bernard L. Madoff Investment Securities LLC (“BLMIS”) and Bernard L. Madoff (“Madoff”) and by Baker & Hostetler, LLP (“Baker”), counsel for the Trustee.¹ My curriculum vitae and a list of court and deposition appearances are attached to this report as Appendix I.

I. Assignment Scope and Methodology

2. In this report, I:
 - I. Describe the investment management industry and the participants in that industry, including Madoff, J. Ezra Merkin (“Merkin”), and the investment funds managed by Merkin, individually and through his company, Gabriel Capital Corp. (“GCC”), that maintained investment accounts with BLMIS: (i) Gabriel Capital, L.P. (“Gabriel”); (ii) Ariel Fund Limited (“Ariel”); (iii) Ascot Partners, L.P. (“Ascot”); and (iv) Ascot Fund Limited (“Former Ascot Fund”) (collectively the “Defendant Funds”);²
 - II. Opine that there are due diligence customs and practices that are typically performed in the investment management industry; and

¹ I retained Duff & Phelps, LLC, a valuation and corporate finance advisory firm (“D&P”) to assist me in the preparation of this report. Employees of D&P worked under my direction and supervision in the preparation of work supporting my opinions contained herein.

² As used in this report, “Merkin” refers to: (i) Merkin individually; (ii) Merkin as General Partner of Gabriel and Ascot; and (iii) Merkin as owner and manager of GCC, the Investment Advisor for Ariel and Former Ascot Fund. While “advisor” and “adviser” are often used interchangeably in the industry, in this report, I use the spelling of “advisor” that is consistent with how Merkin spelled this term in confidential offering memoranda for the Defendant Funds. For example, GCC is identified as the Investment Advisor for Ariel in a confidential offering memorandum. Ariel Fund Limited Confidential Offering Memorandum, March 2006 (BS00024247 at 24248).

III. Opine that due diligence consistent with industry customs and practices would have revealed numerous red flags relating to the Gabriel, Ariel, Ascot, and Former Ascot Fund BLMIS accounts (collectively, the “Merkin BLMIS Accounts”).³

3. I am compensated for my work at a standard rate of \$824 per hour plus out-of-pocket expenses. My compensation is in no way contingent upon my opinions or the testimony I intend to offer in this case.

A. Information Sources

4. My opinions are based upon my education and experience as well as the information obtained through documents produced in this case and publicly-available information. A complete listing of the documents considered in connection with my opinions is included in Appendix II of this report. To the extent that additional information becomes available, I reserve the right to amend or supplement my opinions.

B. Conduct of Information Review and Analysis

5. The work conducted in connection with the assignment was planned, supervised and staffed in accordance with applicable professional standards. The work that was conducted included, but was not limited to:
- i. Review and analysis of documents exchanged between the Trustee, the Defendants and third parties related to this proceeding;
 - ii. Review and analysis of customer statements, trade confirmations and other related BLMIS documentation;⁴

³ Unless otherwise indicated, as used throughout his report, the Merkin BLMIS Accounts refer to the following BLMIS accounts and their composite returns: 1FN005, 1FN004, 1A0042, 1A0058, 1FR070, and 1G0321.

⁴ FTI Consulting, Inc. (“FTI”), hired directly by Baker, performed certain work at the direction and supervision of Baker. Such was conducted largely before my retention. To the extent any such data was relied upon or supports analyses or opinions herein, the accuracy of the data was tested to ensure reliability.

- iii. Review and analysis of the purported trading activity in the Merkin BLMIS Accounts;
 - iv. Review of certain deposition transcripts; and
 - v. Review of publicly-available information including market data and fund databases.
6. The review and analyses I performed were consistent with applicable customs and practices in the investment management industry.

II. Qualifications

7. I am currently the president of Steve Pomerantz LLC, where I provide economic and investment management consulting, economic damage assessment and litigation support.
8. I received a Ph.D. in Mathematics from the University of California at Berkeley and a B.A. in Mathematics from Queens College of the City University of New York. I am currently an Adjunct Professor of mathematics at Queens College. I previously taught courses in statistics, probability, operations research, mathematics and finance at the undergraduate and graduate levels for various institutions.
9. My experience in the investment management industry spans nearly 30 years. During my career, I have held positions in research and management for fixed income, equities, derivatives, and alternative investments at major firms including Morgan Stanley, Citibank, and Weiss Peck & Greer LLC (“WPG”). I have also consulted for alternative investment management firms including New York Life Investment Management.
10. At WPG, I started as the Director of Fixed Income Research with additional portfolio management responsibilities.⁵ Subsequently, I became the Director of Quantitative Research with responsibility for quantitative research on all of WPG’s products including

⁵ Portfolio managers are paid for making investment decisions with money that has been placed under their control. In general, portfolio management refers to the construction of portfolios designed to achieve certain investment objectives. STEPHEN A. ROSS, RANDOLPH W. WESTERFIELD & JEFFREY JAFFE, CORPORATE FINANCE 261 (7th ed. 2005).

traditional, alternative, fixed income, and equity products. As the Director of Quantitative Research, I was the Chair of the Asset Allocation Committee. I also served on the Executive Committee, the Investment Policy Committees of both traditional and alternative products, and on the firm-wide Product Review Committee. My role on the Product Review Committee was to monitor the performance of all products including hedge funds and other investment vehicles offered by WPG.⁶ In this role I performed quantitative analyses on these investment vehicles. The quantitative analyses I performed on WPG's products were similar to the quantitative analyses I performed in connection with the opinions in this report.

11. In addition to my role monitoring WPG's investment products, I also supported the firm's clients by assisting them in identifying investment vehicles that would meet their investment goals, and portfolio management. The firm's clients that I supported included institutional investors, hedge funds, funds of funds, defined benefit plans, and defined contribution plans and trusts.⁷
12. As part of my portfolio management responsibilities at WPG, I was subjected to due diligence by investors (or their consultants⁸) who were considering placing money with

⁶ The term hedge fund is generally used for "an entity that holds a pool of securities and . . . other assets," and "in addition to trading equities . . . may trade fixed income securities, convertible securities, currencies, exchange-traded futures, over-the-counter derivatives, futures contracts, commodity options and/or other non-securities investments." SEC, STAFF REPORT, IMPLICATIONS OF THE GROWTH OF HEDGE FUNDS, 3-4 (2003), *available at* <http://www.sec.gov/news/studies/hedgefunds0903.pdf>.

⁷ A fund of funds is an investment vehicle that channels its investors' money into other funds (e.g., other hedge funds, mutual funds, private equity funds or venture capital funds). JOHN DOWNES & JORDAN ELLIOT GOODMAN, BARRON'S FINANCE & INVESTMENT HANDBOOK 51 (5th ed. 1998); *see also* Andrew Ang, Matthew Rhodes-Kropf & Rui Zhao, *Do Funds-of-Funds Deserve Their Fees-on-Fees?* 1 (Nov. 20, 2005) (AFA Chicago Meetings Paper), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=687274.

⁸ There are dozens of firms that specialize in due diligence. Aksia LLC and Albourne Partners are two such firms who were consulted by investors and determined prior to December 11, 2008, that BLMIS was too good to be true. David Glovin, Karen Freifeld & David Voreacos, *Investment Adviser Aksia Warned Clients of Madoff 'Red Flags'*, BLOOMBERG (December 13, 2008), http://www.bloomberg.com/apps/news?pid=newsarchive&sid=afr_KQndJUUs; Matthew Goldstein, *The Madoff Case Could Reel in Former Investors*, BLOOMBERG BUSINESS (December 31, 2008), http://www.businessweek.com/magazine/content/09_02/b4115025606347.htm.

investment vehicles managed by the firm.⁹ Potential investors investigated the WPG products with which I was affiliated, and inquired about me personally. I also responded to questions generated by the types of analyses I performed in this report, which has contributed to my knowledge of due diligence practices. For example, while at WPG I responded to due diligence inquiries from consulting firms such as Wilshire Associates, Frank Russell and Callan. After I left WPG, I worked as a consultant to a variety of investment management firms. In that role, I continued to respond to due diligence inquiries from the above consulting firms and others including Merrill Lynch Consults and Lockwood.

13. I have been a portfolio manager and a risk manager providing services to both traditional and alternative investments, and providing investment and asset allocation advice to a wide range of clients.¹⁰ I was a portfolio manager for fixed income, equity and hedge fund accounts. As a portfolio manager I developed security selection models (algorithms) to be used in the construction of portfolios. Within traditional portfolios, these algorithms are used to determine the stocks to own and the weights to be assigned to them within the portfolio. In addition, I developed trading and execution models, which are typically a part of any trading strategy. My role as a risk manager was parallel to that of a portfolio manager, where I utilized the same analytical methods to monitor rather than construct portfolios.
14. The portfolio management and risk management positions I held were typically quantitative in nature, performing functions similar to those that fund managers

⁹ An article in 1995 discusses how by the mid-1990s, firms such as Link Strategic Investors were building due diligence systems, offering clients 30 page assessments of hedge funds. Miriam Bensman, *Hedge Funds Discover Investor Relations*, Institutional Investor (December 1995).

¹⁰ Effective risk management identifies, assesses, and controls numerous sources of risk, both financial and nonmarket related, in an effort to achieve the highest possible level of reward for the risks incurred. CFA Institute, *Alternative Investments, Risk Management, and the Application of Derivatives CFA Program Curriculum, Level III, Vol. 5*, 133-139 (2014).

- perform.¹¹ In addition, the hedge funds and equity funds that I worked for followed quantitative strategies that were based on identifying a subset of an index that would outperform the index.
15. As part of my work in the investment management industry, I have performed due diligence on hundreds of investment vehicles including both registered and unregistered investment advisor accounts, managed/separate accounts, hedge funds, and mutual funds. Due diligence is a process whereby an investment manager initially investigates an investment to assess the attractiveness of an opportunity, the quality of the management team, the key risks associated with the opportunity, and continues to monitor and evaluate the investment on an ongoing basis.¹²
16. The types of due diligence I performed on these investment vehicles focused on, among other things, developing an understanding of the applicable strategies, analyzing returns, and performing performance attribution, to the extent possible. Performance attribution refers to a range of analyses that are oriented towards determining the source of benchmark-relative performance and the extent to which the performance is consistent with the purported strategy.¹³
17. Additionally, I have spoken at investment seminars, presenting on various areas of portfolio management, risk management, asset allocation, hedge fund products, and securities pricing. I have also authored articles related to investment management including *Mutual Fund Advisory Fees: New Evidence and a Fair Fiduciary Duty Test* and *The Pursuit of Alpha in a Fund of Hedge Funds*.¹⁴
18. I have offered testimony in a variety of venues on matters similar to those discussed in

¹¹ In the investment management industry the term “fund manager” typically refers to a manager of any kind of fund, including a mutual fund, hedge fund, or fund of funds. For purposes of this report I use the term Fund Manager to represent a manager of a fund of funds unless otherwise indicated.

¹² Due diligence is discussed in detail *infra* Section V, Opinion No. 1 of this report.

¹³ FRANK J. TRAVERS, INVESTMENT MANAGER ANALYSIS 179-207 (2004).

¹⁴ See Appendix I.

this report. In particular, I have testified in tax court, bankruptcy court, and district court on the role of derivatives in an investment program. My testimony on derivatives related to the use of puts, calls and collars, and how those securities were used in tax shelters. In those cases, my opinions centered on an analysis of these transactions and their associated economic merits. I have also testified dozens of times on due diligence and investment performance-related issues for both traditional and alternative investments. The due diligence activities on which I have testified include some of the same activities I performed as part of this assignment, including, but not limited to, peer analysis and performance attribution.¹⁵ As an example, I have analyzed returns in those cases with an eye towards performing performance attribution which included a variety of statistical calculations designed to determine the source, not just measurement of, performance. In cases involving funds of funds, my testimony involved an analysis of the performance and red flags associated with the funds of funds and the funds in which they invested.

19. The opinions that I offer in this report are based on my review of the facts, data and documents in this case as well as my training, education and experience in the investment management industry.

A. Quantitative and Qualitative Due Diligence Experience in the Investment Management Industry

20. Throughout my career, I have advised more than a dozen investment management firms with assets under management (“AUM”) from tens of millions to billions of dollars on risk management and portfolio strategy. As a portfolio manager, risk manager, and consultant, I have conducted due diligence on various investment products, including the development of risk models, pricing models, and other quantitative and qualitative analyses.

¹⁵ Peer analysis is a comparison of different investment managers’ performance metrics that use the same or similar investment strategies. EDWARD J. STAVETSKI, MANAGING HEDGE FUND MANAGERS: QUANTITATIVE AND QUALITATIVE PERFORMANCE MEASURES 71, 79 (2009).

21. I have consulted or worked for hedge funds such as Galileo, Andover, and Lotus, and provided due diligence and risk management services to established funds of funds.
22. The funds of funds for which I performed due diligence maintained diversified portfolios of 10 to 30 individual fund investments (i.e., investments with other investment advisors). My responsibilities were to monitor and evaluate the current holdings of the funds of funds as well as to continually evaluate new investment opportunities.
23. I routinely develop valuation and trading models for proprietary use, and perform due diligence on investments from both quantitative and qualitative perspectives. Quantitative due diligence is generally focused on the investment strategy, and includes analyses to identify how the strategy works and whether the results are consistent with the strategy. From a quantitative perspective, I perform peer analysis, reverse engineering,¹⁶ performance attribution, and other analyses related to investment and portfolio performance. Qualitative due diligence is more focused on the investment manager and the investment manager's operations. From a qualitative perspective, I analyze, among other things, the philosophy, the pricing structure, the business infrastructure, and the people involved with the investment vehicle.

B. Review of Investment Vehicles Invested With BLMIS

24. It is through my due diligence practice that I encountered funds of funds that were exposed to BLMIS.¹⁷ The first time I encountered BLMIS was in 2005 when my client, a fund of funds, asked me to perform due diligence on dozens of funds in which it was

¹⁶ Reverse engineering is the process of "extracting the knowledge or design blueprints from anything man-made." ELDAD EILAM, REVERSING: SECRETS OF REVERSE ENGINEERING 3 (2005). As it relates to due diligence, reverse engineering is the process of replicating, as best as possible, the investment strategy being pursued. FRANK J. TRAVERS, HEDGE FUND ANALYSIS: AN IN-DEPTH GUIDE TO EVALUATING RETURN POTENTIAL AND ASSESSING RISKS 293 (2012).

¹⁷ Throughout this report "BLMIS" will refer to the Investment Advisory business (the "IA Business") of BLMIS. There was also a market making and proprietary trading business of BLMIS, herein referred to collectively as the "Proprietary Trading Business." If I am referring to the Proprietary Trading Business I will explicitly indicate as such.

- invested, and to evaluate other potential investments. The fund of funds had approximately \$500 million in AUM, and invested in approximately 30 different funds following a variety of strategies such as merger arbitrage, volatility arbitrage, macro, and structured finance.
25. This client was not directly invested with BLMIS, but one of its funds was invested with a feeder fund that was invested with BLMIS.¹⁸ As a result, my due diligence activities included an analysis of both the feeder fund and BLMIS.
26. As part of my due diligence review, I did not have access to BLMIS customer statements, trade confirmations, or any other BLMIS documents. Nor did I have access to any BLMIS personnel in order to ask questions. I spoke with the head of the feeder fund, and inquired as to whether I could speak to Madoff; I was, however, denied access to Madoff and any other BLMIS personnel.
27. My client's Fund Manager provided me with two pieces of information: (i) a one-page document explaining the strategy that Madoff purportedly followed, namely a version of the split-strike conversion ("SSC") strategy;¹⁹ and (ii) monthly rates-of-return for the BLMIS feeder fund from 1997 to 2005. Using this limited information, I performed quantitative analyses consistent with industry customs and practices to evaluate the investment performance of BLMIS, including reverse engineering, peer analysis, and performance attribution.
28. My due diligence, based on the limited information available to me, revealed red flags

¹⁸ For purposes of this report, a BLMIS feeder fund is an investment vehicle that invested with BLMIS.

¹⁹ See Section VI.A.1 for a discussion of the split-strike conversion strategy. The split-strike conversion strategy as purportedly employed by Madoff involved buying a security (or a basket of securities in the S&P 100), buying a put option on that security (or on the S&P 100 Index), and selling a call option on that security (or on the S&P 100 Index). *N.Y.U. v. Ariel Fund Ltd. et al.*, Merkin Dep. 127:5-9, February 9, 2009; Trustee Ex. 360 (Trading Authorization Directive, Oct. 22, 2002) (GCC-SEC 0027370-381 at 380). See *supra* Section VI.A.1 for a detailed discussion of the S&P 100 Index.

relating to Madoff's purported investment strategy (the "Madoff SSC" strategy).²⁰ In particular, I observed that the stated monthly returns, which were continuously positive month after month, were entirely inconsistent with the SSC strategy. Through reverse engineering, I attempted to replicate the strategy so that I could evaluate the risks and returns of the investment. In doing so it became apparent to me that the reported returns were not consistent with the Madoff SSC strategy. Specifically, the reported BLMIS-based returns were less volatile than they should have been based on the elements of the Madoff SSC strategy. As a result, I became convinced that Madoff was not performing any version of the SSC strategy. In fact, I communicated to my client that Madoff was likely engaged in front-running²¹ or some other fraud because of the lack of volatility and lack of correlation to the S&P 100.²² I made a recommendation to my client to divest and not invest any additional funds with the BLMIS feeder fund. My client divested in part from the BLMIS feeder fund in which it was invested.

29. In 2008, I encountered BLMIS again when another fund of funds asked me to perform due diligence on a potential investment with a different BLMIS feeder fund. I was provided with: (i) the BLMIS feeder fund's marketing documents explaining the Madoff SSC strategy; and (ii) monthly returns for the BLMIS feeder fund from 1997 to 2008.
30. By 2008, I had become convinced that Madoff was not following any version of the SSC strategy, and was likely engaged in front-running or some other fraud. I informed my client that I believed Madoff was not engaged in the strategy he purported to follow and recommended against investing in the BLMIS feeder fund. My client ultimately decided not to invest.

²⁰ All discussions of and opinions related to the Madoff SSC strategy, BLMIS trading activities, positions, or returns in the Merkin BLMIS Accounts are assumed herein to be purported.

²¹ Front-running "refers to a situation in which a trader, knowing that an order is about to come in, trades in the same direction before the anticipated order is executed." Fang Cai, *Was There Front Running During the LTCM Crisis?* 1 (Bd. of Governors of the Fed. Reserve Sys., No. 758, 2003).

²² Correlation measures the degree of association between two investments. FRANK J. TRAVERS, INVESTMENT MANAGER ANALYSIS 94-96 (2004).

III. Summary of Expert Opinions

Based on my experience, investment industry customs and practices, and the analyses I conducted in connection with this report, my expert opinions are as follows:

1. **Opinion No. 1: In the Investment Management Industry, There Are Due Diligence Customs and Practices That Are Typically Performed**

31. When a Fund Manager allocates investments to another investment advisor, it is industry custom and practice for the Fund Manager to evaluate the investment opportunity by performing due diligence. The purpose of due diligence is to understand the advisor's investment process, to determine whether the resulting investment fits the Fund Manager's goals and risk tolerances, and to make a determination about the sustainability of the investment advisor and strategy.
32. Due diligence—performed both prior to making an investment decision and during the life of an investment—is necessary to ensure that investments are achieving the right amount of reward with the commensurate level of risk.²³ Industry custom and practice is to perform due diligence elements such as performance attribution, peer analysis, alpha analysis, reverse engineering, risk-adjusted and style-adjusted analyses, scenario analysis, drawdown analysis, and correlation analysis among other analyses.
33. As is industry custom and practice I have organized these elements into a framework that I refer to as the “Five Ps”—consisting of Process, Portfolio, People, Performance, and Price.²⁴ The specific analyses and assessments performed within the Five Ps depend, in

²³ In addition to market risk (generally of the greatest concern to investors in hedge funds), investors are concerned with other risks including, but not limited to credit, counterparty, liquidity, and default risk. *See* MANAGED FUNDS ASSOC., SOUND PRACTICES FOR HEDGE FUND MANAGERS, §§ 4-4.17, app.III at 7-30 (2007); *Counterparty Risk Survey: New Approaches to Risk Management Post-Lehman*, CREDIT MAG., Dec. 2009, at 34, available at http://www.risk.net/digital_assets/490/033-043_CR_1209.pdf; Sherree Decovny, *Reining in Liquidity Risk*, CFA MAG., July-Aug. 2010, at 28-29, available at <http://www.cfapubs.org/doi/pdf/10.2469/cfm.v21.n4.15>.

²⁴ The origins of this framework were developed during the 1970s by Russell Investments, a leading advisory firm servicing individual and institutional investors. The People category is sometimes referred to as Personnel, the

part, on the investment opportunity, the information that is known about the opportunity, and the documents and data available for analyses. For example, prior to making an investment, a potential investor may have historical monthly returns with which to perform quantitative due diligence such as peer analysis, correlation analysis and strategy replication. However, after an investment has been made, an investor will typically have access to additional information that may include transaction level information, allowing for more detailed analyses such as performance attribution and scenario analysis. Additionally, the longer an investor remains in an investment, the longer period over which these analyses can be performed.

2. Opinion No. 2: Due Diligence Consistent with Industry Customs and Practices Would Have Revealed Numerous Red Flags Relating to the Merkin BLMIS Accounts

34. Based on the strategy and the information available, all of the due diligence analyses I performed in connection with this report were industry customs and practices as of 1997 unless otherwise indicated.
35. Due diligence consistent with industry customs and practices would have confirmed that Madoff could not have legitimately generated the returns he claimed using the Madoff SSC strategy. The due diligence processes described within this report include those that were customarily performed by Fund Managers as part of initial due diligence and ongoing monitoring of investments by 1997. These analyses would have revealed numerous red flags (i.e., doubts or concerns regarding the investment opportunity) in each of the Five Ps (i.e., regarding every aspect of the investment) concerning Madoff and his purported strategy.

Process category is sometimes referred to as Philosophy, and the number of “Ps” may differ. Brian Tipple, Chief Investment Officer, Russell Investments London, Remarks before 2009 CFA Inst. European Inv. Conf., *Avoiding the Pitfalls: Best Practices in Manager Research and Due Diligence*, 46-47 (October 21-23, 2009); *see also* Russell Investment Group, *Russell's Core Philosophy 9* (October 2006), *available at* investment-planners.com/private/images/advisorresources/RussellCorePhilosophy.ppt.

36. The scope of the due diligence analyses I performed is based on (i) information that was available to Merkin in connection with the Merkin BLMIS Accounts; (ii) information resulting from performing due diligence analyses on the Merkin BLMIS Accounts; and (iii) third-party information available to Merkin over the life of Defendant Funds' investments with BLMIS.

IV. Madoff and Merkin Operated Within the Investment Management Industry

37. Because BLMIS, Madoff, and Merkin operated within the investment management industry it is important to understand this industry and the role due diligence plays in the industry. At the most fundamental level, the investment management industry includes: (i) investors; (ii) investment advisors/managers (including Fund Managers);²⁵ and (iii) service providers.
38. Customs and practices of market participants in the investment management industry, are generally all in support of the primary investment goal: to maximize reward while simultaneously limiting risk, including the risk of theft or fraud. In order for participants to achieve that goal, they must perform due diligence.

A. Overview

39. While investors drive the amount of capital available to be invested, investment advisors are often thought of as “intermediaries” in the investment management industry. That is, they serve the investment management markets to advise on the allocation of capital between the various investment options, and the selection of transactions or investment opportunities within the investment option.

²⁵ I have used the terms “investment manager” and “investment advisor” interchangeably in this report and these terms are meant to be synonyms in all respects. Investment advisors include entities such as registered investment advisors (“RIAs”), hedge funds, mutual funds, and Fund Managers. In 2006 BLMIS registered as an investment advisor. Prior to 2006 BLMIS was operating as an unregistered investment advisor.

40. Investment advisors provide a combination of advice and execution services in facilitating the invested capital to its destination. They manage client assets either on a pooled basis (e.g., mutual fund, hedge fund, commingled trust) or on a separate account basis which are often referred to as managed accounts.
41. The service providers serve the investment advisors and investors. They offer to execute transactions and provide custody and record keeping services. Service providers include custodians, auditors, broker-dealers, prime brokers, administrators, and transfer agents.
42. The size of the investment management industry is typically measured by the size of the AUM in the industry. The sum total of AUM in the industry is the total dollar amount that investors place with a fund or investment advisor. Industry assets are typically invested in three different vehicles: (i) funds (e.g., hedge funds and other commingled vehicles); (ii) self-managed accounts; and (iii) managed accounts.²⁶ Assets invested in mutual funds and hedge funds, which comprise the majority of industry AUM, grew from approximately \$500 billion in 1985²⁷ to over \$20 trillion by 2008.²⁸

B. Merkin's Role in the Investment Management Industry

43. Merkin was a Fund Manager, a type of investment advisor in the investment management industry. Merkin ran funds, managing client accounts and allocating capital between various investment options. Merkin was the General Partner for Gabriel and Ascot. GCC, owned and controlled by Merkin, was the Investment Advisor for Ariel and the

²⁶ There is some overlap in these categories to the extent that a managed account or self-managed account invests in a hedge fund, mutual fund, or other pooled investment vehicle.

²⁷ Barry Eichengreen & Donald Mathieson et. al, *Hedge Funds and Financial Market Dynamics* 33 (Int'l Monetary Fund, Occasional Paper No. 166, 1998).

²⁸ See Michael L. Goldstein & Jonathan Freedman, *The Future of Money Management in America: Key Issues Facing the Mutual Fund Industry* (Bernstein Research December 5, 1997); *Hedge Fund Industry: Assets Under Management – Historical Growth of Assets (2007-2014)*, BARCLAYHEDGE.COM, http://www.barclayhedge.com/research/indices/ghs/mum/Hedge_Fund.html (last visited Mar. 4, 2015); INVESTMENT COMPANY INSTITUTE, 2010 INVESTMENT COMPANY FACT BOOK 182 (50th ed. 2010).

Former Ascot Fund.²⁹ All of these funds were controlled by Merkin, and were invested with BLMIS.³⁰ Merkin received fees for his role as the General Partner and/or Investment Advisor for these funds.³¹

44. Merkin marketed his funds as hedge funds.³² In past decades, hedge funds were generally investment partnerships where capital contributed by investors (i.e., limited partners) was pooled together and invested in strategies often involving long and short positions. Over time hedge funds have evolved into complex, global, multifaceted investment organizations with a myriad of varying characteristics. There are, however, common features that most hedge funds exhibit. These features include: lightly or unregulated organizational structures, flexible investment strategies, sophisticated investors, substantial investments by management, and substantial managerial incentive

²⁹ In 2002, Ascot and the Former Ascot Fund were unified into a master-feeder structure, with the Former Ascot Fund investing through Ascot. At that time, the Former Ascot Fund's Investment Advisory Agreement with GCC was terminated. Trustee Ex. 8 (Letter from Gabriel Capital Group to Investors, November 11, 2002) (GCC-NYAG 0031102); Trustee Ex. 240 (Letter from Ascot Partners, L.P. to Investors, November 11, 2002) (BS00451097); Trustee Ex. 334 (Termination Agreement between Gabriel Capital Corporation and Ascot Fund Limited, December 19, 2002) (AF00000187); *see* Seymour Dep. 71:23-72:11, January 13, 2015.

³⁰ *N.Y.U. v. Ariel Fund Ltd. et al.*, Merkin Dep. 26:14-16, February 9, 2009; *see also* Merkin Dep. 125:22-126:13, 127:21-128:12, 277:4-9, February 24, 2015. The duties of a General Partner of a fund generally include the hiring of an Investment Advisor and while the Investment Advisor is typically charged with reviewing the reasonableness of all investments, ultimately all investment decisions are typically the responsibility of the General Partner. In the case of Ariel, the Investment Advisor "ha[d] ultimate responsibility for the management, operations, and investment decisions" of the fund, while documents for Gabriel indicated that "all decisions with respect to the management of the capital of the partnership are made exclusively by [Merkin]." Merkin was General Partner of Gabriel and Ascot, and was the owner, Managing Partner and General Partner of GCC, who was the Investment Advisor for, and who controlled, Ariel. Autera Dep. Ex. 12, October 19, 2011 (Ariel Fund Limited Confidential Offering Memorandum, March 2006) (GCC-SEC0000649; *see also* BS00024247); Trustee Ex. 107 (Gabriel Capital, L.P. Confidential Offering Memorandum, March 2006) (09-01182-GOTR-0000002); Autera Dep. Ex. 10, October 19, 2011 (Ascot Partners L.P. Confidential Offering Memorandum, December 2002) (GCC-NYAG0000164; *see also* BS00021346 at 1360).

³¹ Trustee Ex. 353 at 14-17 (Gabriel Capital Group presentation, April 2008); Autera Dep. Ex. 12, October 19, 2011 (Ariel Fund Limited Confidential Offering Memorandum, March 2006) (GCC-SEC0000649; *see also* BS00024247); Ascot Partners L.P. Confidential Offering Memorandum, March 2006 (BS00319494); Trustee Ex. 338 (Ascot Fund Limited Confidential Offering Memorandum, October 2006) (AF00000026); Trustee Ex. 107 (Gabriel Capital, L.P. Confidential Offering Memorandum, March 2006) (09-01182-GOTR-0000002). One of Merkin's investors stated that he paid Merkin "to do the due diligence, arrange the auditing and do all the things that had to be done with governance of any pool of assets." Ehrenkranz Dep. 64:1-13, March 20, 2014.

³² Smith Dep. 18:10-24, 21:14-22:1, March 4, 2014; Gottlieb Dep. 108:19-109:11, October 22, 2012.

fees.³³

45. The structure of the Defendant Funds was more similar to that of a fund of funds than a hedge fund. Whereas hedge funds generally make direct investments into equities, bonds, commodities or other financial instruments, fund of funds undertake direct investments into the hedge funds themselves. Merkin acted more like a fund of fund manager in that the predominance of assets held in Merkin's funds were invested with another manager, or were actively managed by someone other than Merkin³⁴. For example, over 90% of the invested assets in Ascot/Former Ascot Fund were typically allocated to Madoff,³⁵ while by 2008 approximately 30% of the assets in Ariel/Gabriel were allocated to Madoff.³⁶ By 2008 approximately 70% of the assets in Ariel/Gabriel were allocated to other investment managers.³⁷

C. Madoff's Role in the Investment Management Industry

46. Madoff was functioning as, and serving in the capacity of, an investment advisor for BLMIS customers, including the Defendant Funds.³⁸ Additionally, Madoff operated BLMIS's Proprietary Trading Business as a broker-dealer. The responsibility of a broker-dealer is limited to the execution of a transaction. While a broker-dealer may

³³ Carl Ackermann, Richard McEnally & David Ravenscraft, *The Performance of Hedge Funds: Risk, Return, and Incentives*, LIV J. FIN. 833, 833-834 (1999).

³⁴ Merkin also managed some assets for Ariel/Gabriel in-house at various points in time. Funds of funds can also manage some assets in-house. While these are not pure fund of funds, they would be considered a fund of fund if they predominantly invest in other investment advisors as Merkin did. Mayer Dep. 9:12-14:12, October 11, 2011; Hess Dep. 20:2-22:15, October 11, 2012.

³⁵ Ascot Partners, L.P. Balance Sheet, December 31, 2007 (BS00313824). Note, however, that on some occasions Ascot made non-Madoff investments, at which times may have represented up to 10% of the entire portfolio. *In re Madoff Charities Investigation*, Merkin Dep. 178:17-180:2, January 30, 2009.

³⁶ 2008 Capital Allocations (GCC-P 0117600). Data is as of November 30, 2008.

³⁷ The other investment managers were Stephen Feinberg, Jack Mayer and David Sherman. 2007/2008 Capital Allocations Excel File, January 1, 2008 (GCC-P0115588); 2008 Capital Allocations Excel File, January 1, 2009 (GCC-P0117600); *Morry Weiss et al. v. J. Ezra Merkin*, Merkin Dep. 61:13-15, 226:12-18, 234:17-21, August 10, 2011.

³⁸ *Jesselson v. Merkin*, Hearing Transcript 386:20-388:5, September 13, 2011.

recommend the purchase or sale of certain securities, an investment advisor has the more far-reaching responsibility of the ongoing implementation of an investment strategy.

47. As an investment advisor for the Defendant Funds, Madoff had the sole and broad-based authority and responsibility for, among other things, determining the strategy, selecting the individual stocks to purchase, determining which options to incorporate, as well as the timing for entering and exiting the market. These are examples of the functions of an investment advisor and extend well beyond the authority and role of a broker-dealer.
48. The relationship between an investor, a Fund Manager, and an investment advisor involves fees for activities performed by each party. An investor entrusts assets with a Fund Manager such as Merkin, who is paid by the investor to perform due diligence on investment opportunities and investment advisors, choose investment opportunities, and provide administrative services. A Fund Manager then chooses an investment opportunity or investment advisor, such as Madoff, who is then paid to perform an investment strategy, execute transactions, and provide administrative services.

V. OPINION NO. 1

IN THE INVESTMENT MANAGEMENT INDUSTRY, THERE ARE DUE DILIGENCE CUSTOMS AND PRACTICES THAT ARE TYPICALLY PERFORMED

A. Due Diligence

49. Due diligence is a process whereby a Fund Manager initially investigates an investment to assess the attractiveness of an opportunity, the quality of the management team, the key risks associated with the opportunity, and continues to evaluate and monitor the investment on an ongoing basis. The due diligence discussed in this report relates primarily to the analyses performed by Fund Managers on investments into other funds or

investment vehicles.³⁹

50. Due diligence of an investment advisor such as BLMIS is critical because it allows Fund Managers to understand the advisor's investment process and determine whether the resulting investment fits the Fund Manager's goals and risk tolerance. In addition, it allows the Fund Manager to make a determination about the longevity and sustainability of the investment advisor and/or the strategy. The investment advisor and the strategy together can be thought of as a business, and ultimately the Fund Manager is investing in a business.⁴⁰ Therefore, evaluating the sustainability of that business through due diligence is important because a Fund Manager, like any investor, would not invest in an unsustainable business.
51. Generally, the due diligence process (both before and after an investment is made) is designed to identify red flags as early as possible. A red flag is information that raises doubt or concern regarding an investment opportunity and can include: (i) any impossibilities where the only reasonable explanation is fraud; (ii) any indications that the advisor is not executing the strategy; (iii) any indicia of fraud or changes to the risk profile of the invested assets; (iv) any inconsistencies with the stated strategy; (v) any potential changes in the advisor and/or his organization, investment process, or philosophy; (vi) any situations that created an opportunity for fraud; and (vii) any inconsistencies with industry customs and practices.
52. Over time, industry sources have compiled reports establishing concurrent due diligence "best practices" process for Fund Managers and other investors. These reports highlight industry customs and practices for due diligence. While memorialized in "best practice"

³⁹ While some Fund Managers may manage some assets in-house, due diligence on these assets is typically of a different nature and includes different analyses and expertise. For example, the due diligence typically performed to help decide whether to invest in an equity, bond, commodity or other financial instrument or asset is more likely to include industry research, company research, credit analysis, comparable company analysis, and historical financial analysis than it is to include performance attribution, correlation analysis or other similar due diligence analysis as discussed below. *See, e.g., Merkin Dep. 130:1-137:13, February 24, 2015.*

⁴⁰ *See, e.g., Orchard Dep. 40:22-41:10, October 8, 2013.*

reports, these customs and practices have for the most part been used in the investment management industry for years before they were memorialized. Based on my experience, most current industry customs and practices, including ones I perform in this report, were established by 1997 when one of the earliest practice guides on due diligence was published.

53. Starting in 1997, the Alternative Investment Management Association (“AIMA”) produced a Due Diligence Questionnaire (“DDQ”) for use by those investing in or servicing the hedge fund industry.⁴¹ The purpose of the AIMA DDQ was to provide investors with suggested questions when selecting investment advisors, managers and service providers. Consistent with the development of these set of typical questions for investment advisors by the AIMA, over time other industry sources also published customs and practices for due diligence.⁴²
54. Due diligence is performed based on all information available. Fund managers rely on information from a variety of sources. For example, Fund Managers collect information from publicly-available sources including databases,⁴³ pricing services,⁴⁴ and marketing materials, as well as directly from the investment advisor through interviews, meetings,

⁴¹ AIMA, *AIMA Launches New Due Diligence Questionnaires*, (April 12, 2007); *see also* AIMA’s Illustrative Questionnaire for Due Diligence of Fund of Hedge Funds Managers (2004) (BS00115001).

⁴² Managed Funds Association (“MFA”) is a lobbying group established in 1991 for the alternative investments industry. The MFA submitted a report in 2008 entitled “Hedge Fund Standards: Final Report,” which also functions as a thorough manual of due diligence best practices for hedge fund managers. *Hedge Fund Standards: Final Report*, Hedge Fund Working Group (January 2008). This report identified 15 key issues relating to hedge fund practices, grouped into five themes: Disclosure, Valuation, Risk, Management, Fund Governance and Shareholder Conduct (including Activism). The practices included in this report were developed over the life of the MFA.

⁴³ For example, databases such as Bloomberg contain trading and market information, while BarclayHedge and other similar databases contain performance-related as well as operation-related information on hedge funds. These databases were publicly available throughout the Defendant Funds’ investments with BLMIS. *See Bloomberg History & Facts*, BLOOMBERG, http://www.bloomberg.com/company/bloomberg-facts/?utm_source=bloomberg-menu (last visited Mar. 19, 2015); *About BarclayHedge*, BARCLAYHEDGE, <http://www.barclayhedge.com/about.html> (last visited Mar. 19, 2015).

⁴⁴ For example, Morgan Stanley had a pricing service. Merkin Dep. 235:1-12, February 24, 2015.

information requests,⁴⁵ or DDQs.⁴⁶

55. While the investment management industry maintains checks and balances through the use of independent third-party providers for various services in part to help protect against fraud in the industry, the industry also recognizes that these checks and balances are insufficient as the only means of protecting investments. Therefore, due diligence performed by a Fund Manager prior to making an investment decision and during the life of an investment is necessary to ensure that investments are achieving returns commensurate with the level of risk assumed.⁴⁷
56. It is industry custom and practice for Fund Managers to either perform due diligence themselves or engage a consultant to perform the analyses for them.⁴⁸ Often the due diligence can be performed at no cost to the Fund Manager. For example, it is common for offering memoranda to indicate that operating expenses (e.g., for performing due diligence) are paid by the funds themselves (i.e., by the investors, not the Fund Managers).⁴⁹ If not borne directly by the fund, Fund Managers can also use a “soft-dollar” arrangement, where the expenses for due diligence are paid by the broker via mark-ups on broker commissions.⁵⁰

⁴⁵ See, e.g., FRANK J. TRAVERS, INVESTMENT MANAGER ANALYSIS 33-34 (2004).

⁴⁶ A DDQ is a document that potential investors provide to investment advisors prior to investing. The questionnaire requests information regarding background, investment philosophy, historical performance, and other due diligence-related issues. FRANK J. TRAVERS, INVESTMENT MANAGER ANALYSIS 133-147 (2004).

⁴⁷ See *supra* note 23.

⁴⁸ An auditor is not considered a due diligence consultant. It is inconsistent with industry customs and practices for a Fund Manager to rely on their own auditor for any due diligence activities on an investment opportunity.

⁴⁹ See, e.g., Ariel Fund Limited Confidential Offering Memorandum, November 1990 (BS00045255 at 5267); Autera Dep. Ex. 12, October 19, 2011 (Ariel Fund Limited Confidential Offering Memorandum, March 2006) (GCC-SEC0000649; see also BS00024247); Ascot Partners, L.P. Confidential Offering Memorandum December 2002 (BS00021346 at 1360); Gabriel Capital, L.P. Confidential Offering Memorandum, January 2002 (BS00062969 at 2986).

⁵⁰ Confidential offering memoranda for Ariel and Ascot indicate that Merkin had the option to use soft dollars. See, e.g., Autera Dep. Ex. 12, October 19, 2011 (Ariel Fund Limited Confidential Offering Memorandum, March 2006) (GCC-SEC0000649; see also BS00024247); Ascot Partners L.P. Confidential Offering Memorandum, March 2006 (BS00023745).

57. The investment management industry is built on relationships, but it is not an industry where “blind trust” prevails. In my experience, Fund Managers typically follow the “trust but verify” approach given the risk to which a Fund Manager exposes itself and its investors by investing money with an investment advisor.
58. Due diligence applies to all investment advisors, including those with whom Fund Managers have a prior social and/or personal investment relationship. Social relationships may facilitate investment opportunities, but they do not obviate the need for due diligence on those opportunities. Similarly, a Fund Manager’s prior personal investment relationship with an investment advisor also does not obviate the need for due diligence. It is custom and practice in the investment management industry for Fund Managers to perform due diligence on every investment advisor when placing other investors’ money with that advisor.
59. In addition, due diligence applies to all investment advisors regardless of their corporate structure. Although some investment advisory businesses are under the same corporate structure as a regulated broker-dealer, the two businesses are regulated differently and broker-dealer regulations have no bearing on an investment advisor. As such, it is consistent with industry customs and practices for Fund Managers to conduct due diligence on investment advisors regardless of their affiliation with a regulated broker-dealer.
60. In my experience, even the investment advisory businesses associated with the largest broker-dealers in the industry still have due diligence performed on them. These investment advisory businesses complete questionnaires (see discussion below on DDQs, and are subject to both initial and ongoing due diligence.⁵¹ Fund Managers do not give investment advisors a “free pass” on due diligence simply because they have an affiliated broker-dealer operation. The due diligence process extends to whatever individual or

⁵¹ See, e.g., BS00437514 at 7514; BS00527975 at 7975; GCC-P 0245963 at 5964; GCC-P 0245965 at 5965.

entity is making trading decisions.

61. The operational structure of the investment advisory business is also irrelevant as to whether due diligence is performed. For example, investment advisory businesses can be executed through a brokerage account (e.g., BLMIS)⁵² or executed through a fund mechanism (e.g., a hedge fund). However, the form of execution does not excuse the Fund Manager from performing due diligence analyses. Whether the investment vehicle is a fund, a managed account, a pooled investment fund, a discretionary brokerage account, or any other type of business where assets are managed by a third party, due diligence is necessary.
62. In addition, if a fund is invested predominantly with a single advisor there is increased risk from the lack of diversification. In these situations, there is an increased need for ongoing and thorough evaluation because of the increased risk.
63. Once invested, due diligence continues to be essential to ensure that investments are achieving the right amount of reward with the commensurate level of risk based on the stated strategy, and to identify and respond to red flags and/or indicia of fraud. Continued diligence, monitoring, and investigation are not only warranted, but are industry custom and practice when a Fund Manager turns over all decisions and authority related to trading to another individual or entity.

1. Initial Due Diligence

64. As discussed above, there are two general periods when due diligence is performed: (i) initial due diligence is performed before an investment is made;⁵³ and (ii) ongoing/monitoring due diligence is performed while invested.⁵⁴

⁵² Ascot Customer Agreement, November 5, 2002 (BS00305651-662 at 655); *see* Autera Dep. Ex. 9, October 19, 2011 (GCC-SEC 0027389).

⁵³ Merkin Dep. 131:18-132:24, 141:6-9, February 24, 2015.

⁵⁴ Merkin Dep. 183:13-18, 141:11-13, February 24, 2015.

65. Typically, Fund Managers do not have as much information about the potential investment available to them when performing initial due diligence as they do once they are invested and performing ongoing/monitoring due diligence. As a result, initial due diligence often relies on initial interviews with investment advisor staff, historical monthly returns, a description of the strategy, and any other information that can be collected prior to investing. For example, as described in Section II.B, when I was asked to perform initial due diligence for a client on a BLMIS feeder fund, I was only provided with marketing documents, including a description of the strategy, and a history of monthly returns.

2. Ongoing/Monitoring Due Diligence

66. Ongoing due diligence is critical because, once invested, the investment advisor has the Fund Manager's customers' money and it is necessary to evaluate whether the performance is consistent with the stated strategy and the investment advisor's representations. Furthermore, over time, funds often change styles to accommodate their additional assets or in response to changing market conditions. Ongoing due diligence is required to monitor how these changes, if any, may affect performance.⁵⁵ In this manner, due diligence independently verifies what an investment advisor has told a Fund Manager who has invested with the investment advisor. Independent verification is a necessary cornerstone of all aspects of due diligence.

67. In order to maintain consistent supervision over their investments, Fund Managers typically perform monitoring activities including, but not limited to:⁵⁶

- Regular meetings with the investment advisors;

⁵⁵ Trustee Ex. 176 (CA016548) (stating that "[th]e objective of our ongoing due diligence is to ensure that we remain comfortable with all aspects of each monitored manager's investment activity and operational issues as the firm evolves over time."); *see also* Harrington Dep. 18:23-24.

⁵⁶ *See Managing the Investment Managers*, CIBC Due Diligence Process (November 2009).

- Regular peer analysis and benchmarking;⁵⁷
- Performance analyses compared to other advisors with the same or similar investment management style;
- Periodic on-site visits;
- Completion of quarterly questionnaires by investment advisors; and
- Monthly portfolio analysis.

68. Unlike initial due diligence, where limited information may be available, once a Fund Manager is invested, the Fund Manager typically has more information with which to perform ongoing/monitoring due diligence, and has access to a longer track record. Information relevant for ongoing/monitoring due diligence would be any information related to the execution of the stated strategy and related operational activity. Operational activity that would be expected from an investment advisor, and part of the normal course of operations for any investment advisor, would not be considered an endorsement of that investment advisor, or any reason to perform less due diligence on that investment advisor. For example, permitting investments and redemptions, providing confirmations, providing cash flows, and buying and selling stocks is not contributory to the due diligence process.
69. One of the basic tenets of due diligence is to use whatever information is available. For example, to the extent that trade data is available it would be consistent with industry customs and practices to perform analyses on as much of the trade data as possible.⁵⁸
70. Once invested, ongoing/monitoring due diligence should include both proactive due diligence and reactive due diligence. That is, a Fund Manager should be performing ongoing due diligence by performing the activities listed above (i.e., proactive due diligence), at least annually, if not quarterly or monthly. A Fund Manager should also

⁵⁷ See *supra* note 15. Benchmarking refers to the process of comparing the subject fund to objective measures of market performance.

⁵⁸ What is relatively unique about BLMIS is that customers such as the Defendant Funds received a significant amount of data with which one could perform due diligence. Merkin Dep. 168:20-169:21, February 24, 2015.

perform due diligence when information is received or uncovered that raises new concerns regarding the investment (i.e., reactive due diligence).

71. Reactive due diligence should be prompted by new issues or concerns raised by information obtained from third-parties or uncovered independently by the Fund Manager. For example, if a Fund Manager receives information from a third-party that raises new issues or concerns about a particular investment (i.e., “due diligence triggers”), it is industry custom and practice to investigate further. Additionally, if internal information uncovered through a Fund Manager’s own due diligence raises concerns as to the legitimacy of the investment strategy then additional analyses can, and should, be performed by the Fund Manager in order to ferret out any indicia of fraud. Reactive due diligence typically becomes more prevalent over the course of the Fund Manager’s investment.

3. The Results of Due Diligence

72. Equally important to performing due diligence is how a Fund Manager should respond to the results of due diligence. There are different types of red flags that due diligence can raise, each with its own set of actions that a Fund Manager should take. For example, if initial due diligence results in a significant red flag where the only reasonable explanation is fraud, a Fund Manager would typically stop the due diligence process and not invest. It is not necessary to perform each and every due diligence activity if a single activity reveals a significant red flag where the only reasonable explanation is fraud. Similarly, if the same red flag was revealed in ongoing/monitoring due diligence, a Fund Manager would typically redeem their investments and find an alternative investment opportunity.⁵⁹
73. When a red flag is an indicia of fraud or creates an opportunity for fraud, it is industry

⁵⁹ Redeeming investments from an investment vehicle is expected to be available subject to the terms and conditions of the investment vehicle. Redeeming investments is a normal course of operations for funds.

custom and practice for the Fund Manager to perform additional due diligence to ferret out whether the indicia of or opportunity for fraud leads to another red flag.

74. Additionally, it is industry custom and practice to perform additional due diligence when red flags are uncovered that indicate the advisor is not executing or is operating inconsistent with the stated strategy. Again, the purpose of additional due diligence in these situations is to determine whether the information leads to another red flag. More specifically, if an investor finds (e.g., through due diligence) that their returns are different from what is expected based on a certain strategy, additional due diligence should be performed.
75. For example, as a portfolio manager I withdrew money from a fund when the fund performed well in a month when the overall market performed well, despite the fact that the fund was supposed to be hedged, and therefore should not have performed as well as the overall market. Upon further investigation, the investment advisor admitted to having directional biases, which were not initially disclosed and were inconsistent with the strategy as it had been explained prior to investing.

B. The Five Ps Framework

76. Regardless of whether due diligence is initial or ongoing/monitoring, a comprehensive template or framework for conducting due diligence centers around the “Five Ps,” where each P relates to a particular element of due diligence.⁶⁰ The Five Ps are: Process, Portfolio, People, Performance, and Price.⁶¹

⁶⁰ Moody’s Investors Service publishes guidelines regarding investment advisor evaluation and assigns ratings to asset management companies based on those guidelines. *Moody’s Structured Finance Special Report*, Moody’s Investors Service (August 31, 2005). As might be expected, these metrics overlap with the Five Ps discussed *infra*. Moody’s evaluates areas including: Investment Management Activities (40-50% weighting), Investment Results (20-30% weighting), Financial Profile (15-20% weighting), and Client Servicing (5-10% weighting).

⁶¹ The People category is sometimes referred to as Personnel, and the Process category is sometimes referred to as Philosophy. The origins of this framework were developed during the 1970s by Russell Investments, a leading advisory firm servicing individual and institutional investors. Russell Investment Group, Russell’s Core

77. The following is a discussion of the types of due diligence customs and practices typically performed in the investment management industry, and by me, in connection with each of these categories.

1. Process

78. The extent to which investment performance can be repeated over time depends, at least in part, on whether a well-defined investment process is in place. Fund Managers must understand the process, and must evaluate whether an investment advisor's process is indeed well-defined.⁶² Key elements considered in the due diligence evaluation of the investment process include:

- understanding the elements of the investment strategy and its expected performance;⁶³
- scalability: how well the strategy performs with increasing levels of investment;⁶⁴
- investment management style: what is the investment strategy style (e.g., market timing, technical analysis, etc.);⁶⁵
- implementation of investment ideas: how the investment ideas are implemented by the investment advisor (e.g., where, how, when);⁶⁶
- buy and sell disciplines: any rules or disciplines that are followed in terms of when to buy/sell and how much to buy/sell;
- risk management: what the investment advisor does to assess and address risk (e.g., hedging to reduce downside risk);⁶⁷

Philosophy (October 2006), *available at* investment-planners.com/private/images/advisorresources/RussellCorePhilosophy.ppt. Other frameworks use the "P" acronym, though the number of "Ps" may differ.

⁶² For example, an Investment Policy Statement is a document that specifies the overall objectives of a portfolio, and should identify the investment strategies and processes to be used in achieving the portfolio's goals. G. TIMOTHY HAIGHT, STEPHEN O. MORELL, & GLENN E. ROSS, *HOW TO SELECT INVESTMENT MANAGERS & EVALUATE PERFORMANCE* 31 (2007).

⁶³ *See, e.g.*, BS00528392 at 8393.

⁶⁴ *See, e.g.*, Teicher Dep. 64:22-65:18, October 29, 2013.

⁶⁵ *See, e.g.*, BS00196424 at 6425-32.

⁶⁶ *See, e.g.*, BS00126670 at 6670.

- investment research: what research is performed and how it is used;
- team approach: how investment decisions are made (e.g., committee, individual decision maker);⁶⁸
- technology: what kind of technology the investment advisor uses (e.g., computers, trading platforms, software);⁶⁹ and
- service providers and infrastructure: what service providers are used, and what infrastructure exists to reduce risk.⁷⁰

79. Investment advisors are evaluated to ensure their actions adhere to their stated investment philosophy or management style, their professional investment experience, market focus, and portfolio objectives over time and through various market cycles. Questions regarding Process-related due diligence are often asked of investment advisors through DDQs as discussed above, and answers are often provided in writing. Examples of Process-related questions include the following:⁷¹

- Detailed description of the strategy;
- Characterization of style in terms of strategy, hedging, market exposure, and geographical market focus;
- Specific risks that are hedged (e.g., country risk, duration risk, spread risk, credit risk, systematic risk, volatility risk, fundamental factor risk, etc.);
- How downside exposure is addressed;
- Maximum loss on any one position before closing it;

⁶⁷ See, e.g., BS00527975 at 7977, BS00528392 at 8393.

⁶⁸ See, e.g., BS00170938 at 939.

⁶⁹ See, e.g., BS00600100 at 117.

⁷⁰ In a letter from Union Bancaire Privée (“UBP”) to Merkin in 2008, UBP asks Merkin to “describe the counter party credit risk due to Ascot’s options exposure and how that is hedged or managed” and to “describe the due diligence performed by Ascot on Madoff’s operational procedures with specific reference to systems and controls, segregation of duties, wire transfer controls, risk management, regulatory compliance, and business continuity planning.” See Trustee Ex. 363 (Letter from UBP to Merkin, October 10, 2008) (GCC-P 0393142-143). See also Kim Dep. 29:13-25, 31:9-22, November 19, 2013; BS00527975 at 7978.

⁷¹ A 2004 Aozora Bank DDQ asked about the process at GCC, including questions regarding investment style, strategy, hedging, market exposure, geographical focus, typical holding periods, investment criteria, research sources and budget, and the process for handling new investments and redemptions. See Aozora Bank Due Diligence Questionnaire, June 2004 (BS00528297 at 8298-307).

- Breakdown of positions by geography;
- Average holding period for all investments, profitable investments, and/or losing investments;
- Sources used for investment research;
- What research is focused on;
- Annual research budget; and
- Proportion of the research generated internally.

80. It is industry custom and practice for Fund Managers to identify any changes to the Process elements through periodic monitoring due diligence activities. For example, if an advisor changed investment strategies (i.e., “style drift”), it could change the risk profile of the investment opportunity. Even though the advisor has investment discretion, the identification of style drift is important because a Fund Manager may redeem investments if changes in the investment strategy result in a change to the risk profile of the strategy that is outside the Fund Manager’s target risk profile. Finally, transaction level (i.e., securities) due diligence includes, among other things, reviews and analyses of what has been bought and sold as well as understanding the risks of how trades are executed.⁷²

2. Portfolio

81. In addition to initial due diligence, consistent, ongoing due diligence determines whether the investment approach described by the advisor actually reflects the reality of the portfolio constructed.⁷³ A Fund Manager wants to be sure they are compensating an advisor for performance that adheres to the stated investment objective and strategy.
82. As part of Portfolio-related due diligence, it is industry custom and practice to review the performance of an investment advisor relative to benchmarks in order to determine how

⁷² As part of due diligence performed on Madoff by a consultant for McKinsey & Company, prices and volumes on 160 option trades were checked. *See* Thorp Dep. 72:25-74:19, May 22, 2012.

⁷³ Brian Tipple, Chief Investment Officer, Russell Investments London, Remarks before 2009 CFA Inst. European Inv. Conf., *Avoiding the Pitfalls: Best Practices in Manager Research and Due Diligence*, 46-47 (October 21-23, 2009).

much of the investment return is due to general market behavior as opposed to the advisor's active management. The component of the return due to an advisor's ability is commonly referred to as the "alpha" earned by the investment advisor.⁷⁴ Fund Managers measure the alpha of the investment in order to assess the effectiveness of the investment advisor.⁷⁵

83. Performing reverse engineering is also a customary component of due diligence for assessing portfolio risks and characteristics both prior to an investment and during the life of an investment.⁷⁶ The reverse engineering process entails modeling the financial performance of an investment based on information the investment advisor provides regarding the particular strategy. The goal of this process is to understand the returns that could be expected from executing the strategy, how those returns may be correlated with market exposure,⁷⁷ as well as information related to key risk measures associated with any strategy, such as volatility,⁷⁸ or standard deviation.
84. Portfolio-related questions often include subjects such as:⁷⁹
- The greatest risk of the strategy and how it is addressed;⁸⁰
 - Any contemporaneous exposure monitoring performed; and
 - Stress testing of the strategy.⁸¹

⁷⁴ Mathematically, this is calculated by performing a linear regression of portfolio return on benchmark returns. The slope of the regression line is referred to as beta, while the intercept is referred to as alpha. For a fuller explanation, *see* WILLIAM F. SHARPE, INVESTMENTS 611-16 (2d ed. 1981).

⁷⁵ *See, e.g.*, BS00143299 at 311.

⁷⁶ As part of its due diligence, Concord Management, a "research and due diligence company," stated that "the only way to fully understand an investment strategy is to try to replicate it." Matlin Dep. 45:11-16, 45:25-46:1, November 21, 2013.

⁷⁷ *See, e.g.*, BS00170952 at 952.

⁷⁸ Merkin Dep. 91:24-92:3, February 24, 2015.

⁷⁹ Cambridge Associates Due Diligence Questionnaire, June 2007 (BS00527975).

⁸⁰ *See, e.g.*, BS00527975 at 975; BS00116587 at 97-98.

⁸¹ *See, e.g.*, BS00527975 at 980.

3. People

85. Fund Managers evaluate the personnel and qualifications of the investment advisor as much as the investment itself. This assessment includes the individuals with key roles, the reporting structure of the business, the hiring and termination processes, and whether all team members understand the philosophy and process they are supposed to be implementing.⁸² Advisor and team tenure is also important as investment returns reported in the early years of an advisor's investment history may no longer be relevant to the team currently in place. Aspects of people, or staff, typically considered include, but are not limited to:⁸³

- Number of employees;⁸⁴
- Position description and breakdown of employees by type (e.g., portfolio managers, strategists, research analysts, economists, operational, compliance, marketing, management);⁸⁵
- Turnover;⁸⁶
- Background checks on potential employees;⁸⁷
- Compensation structure;⁸⁸
- The number and each type of employee;⁸⁹ and

⁸² Cambridge Associates Due Diligence Questionnaire, June 2007 (BS00527975); *See Managing the Investment Managers*, CIBC Due Diligence Process (November 2009); *see also* Harrington Dep. 51:9-52:8, October 1, 2013.

⁸³ *See* Russell Investment Group, Russell's Core Philosophy (October 2006), *available at* investment-planners.com/private/images/advisorresources/RussellCorePhilosophy.ppt; *See also* Brian Tipple, Chief Investment Officer, Russell Investments London, Remarks before 2009 CFA Inst. European Inv. Conf., *Avoiding the Pitfalls: Best Practices in Manager Research and Due Diligence*, 46-47 (October 21-23, 2009).

⁸⁴ A 2007 Cambridge Associates DDQ asked questions about the personnel at GCC regarding the number of employees, the personnel breakdown by job function, background checks of potential employees, and total assets for each fund. *See* Cambridge Associates Due Diligence Questionnaire, June 2007 (BS00527975 at 977).

⁸⁵ *See, e.g.*, BS00110705 at 707; BS00527975 at 977-978; BS00528392 at 392.

⁸⁶ *See, e.g.*, BS00176983 at 987.

⁸⁷ *See, e.g.*, Email to Merkin re: Due Diligence, March 1, 2007 (BS00196305).

⁸⁸ *See, e.g.*, BS00527975 at 977.

⁸⁹ A 2004 Aozora Bank DDQ also asked about the personnel at GCC, including questions about the background of the principals, the number of investment professionals, employee turnover, total assets by investment vehicle,

- Average years of professional experience.

86. In addition to staff-related questions, other background related questions are typically asked as part of People-related due diligence in order to provide transparency into the size, structure, and client base of a particular investment advisor. Background-related questions typically include the following:⁹⁰

- Legal structure of the company;
- Firm's ownership structure, names of its owners, their percentage ownership, and their role with the firm;
- Total AUM;⁹¹
- Percentage of the fund's capital from management and employees;⁹²
- Growth of AUM;⁹³
- Percentage of AUM represented by the largest clients;
- Breakdown of AUM by type of client group;⁹⁴ and
- Identification of the largest clients.⁹⁵

87. In addition to the People-related aspects and questions listed above, it is typical for Fund Managers to consider the reputation of an investment advisor prior to placing assets with the investment advisor. Due diligence, however, is an asymmetrical process where only issues, concerns or problems are relevant, as opposed to areas of comfort or assurance. For example, when considering an advisor's reputation, it is industry custom and practice for Fund Managers to perform due diligence to identify any potential concerns, not to

and changes in total assets under management. *See* Aozora Bank Due Diligence Questionnaire, June 2004 (BS00528297).

⁹⁰ AIMA's Illustrative Questionnaire for Due Diligence of Fund of Hedge Funds Managers (2004) (BS00115001 at 5003).

⁹¹ *See, e.g.*, BS00527975 at 983; BS00204957 at 960; BS00528392.

⁹² *See, e.g.*, BS00170946 at 946.

⁹³ *See, e.g.*, BS00205015 at 007.

⁹⁴ *See, e.g.*, BS00115001 at 067.

⁹⁵ *See, e.g.*, BS00205061.

identify areas of comfort. A Fund Manager may learn of an investment opportunity because of an advisor's reputation, but reputation itself is a small component of due diligence and reliance on it is not a substitute for due diligence.

4. Performance

88. In evaluating the performance of an investment advisor, whether initially or during ongoing due diligence, both quantitative and qualitative measures are considered, and all analyses must be consistent with the advisor's stated investment style.⁹⁶ Quantitative analysis in particular is a tenet of Performance-related due diligence.⁹⁷ For example, in assessing performance it is custom and practice to perform quantitative analysis to compare the returns of an investment advisor to comparable market indices⁹⁸ and/or a peer group of advisors (i.e., "peer analysis").⁹⁹ In addition, a Fund Manager typically compares the performance of a particular investment advisor with other investments held by the Fund Manager – an activity that I have been engaged to perform numerous times as a consultant. Performance analysis is typically performed on a risk-adjusted or style-adjusted basis so that investment strategies entailing various degrees of risk can still be compared to the subject investment strategy.¹⁰⁰
89. The ultimate goals for any investment strategy are to preserve capital and generate returns through cash flow received from the investment and/or capital appreciation. In general, within efficient and informed capital markets, the return of an asset or portfolio

⁹⁶ See, e.g., BS00082102 at 105-136; Orchard Dep. 19:2-8, October 8, 2013.

⁹⁷ See, e.g., BS00456856; Kim Dep. 23:15-24:19, November 19, 2013.

⁹⁸ See, e.g., Merkin Dep. 95:3-98:17, February 24, 2015.

⁹⁹ See BS00527159 at 159; Harrington Dep. 53:19-23, October 1, 2013; Trustee Ex. 131, (SSKW00007066 at 7066); BS00132728 at 731-769. An article in 1989 describes a "blue-ribbon panel" published report setting forth what it hoped would be a standard for reporting performance numbers. The purpose of these standards was to facilitate due diligence on investment advisors, specifically facilitating peer analysis for example. Nancy Bellivue McConnell, *Can Phony Performance Numbers be Policed?*, Institutional Investor (June 1989).

¹⁰⁰ Different statistical techniques are used to identify investment advisors' sources of return. Risk-adjusted returns evaluate returns in light of the risks assumed, either by investing in more volatile securities or employing leverage. Style-based analyses incorporate the sectors or asset classes invested in as part of their analysis.

tends to be highly correlated to its underlying risk.¹⁰¹ In this context, risk is typically defined as the variability of expected returns. Therefore, the Fund Manager typically weighs the added income and/or return against the incremental risk of a particular investment. Consistent with industry customs and practices, the Fund Manager will perform correlation analysis to assess whether the asset or portfolio is in fact reasonably correlated to the underlying risk.¹⁰²

90. In addition to peer analysis, Performance-related due diligence can also include scenario analysis where the potential ranges of outcomes associated with the implementation of a specific set of trades (e.g., following a particular strategy) are compared to the actual results from the execution of the strategy. Any deviation from these ranges of possibilities would be a red flag that the investment advisor was not implementing the stated strategy.
91. Performance attribution is another due diligence analysis that is typically performed. The purpose of this type of analysis is to identify the source of excess performance delivered by an investment advisor.¹⁰³ Fund managers, in my experience, often conduct performance attribution analyses on a regular basis in order to both monitor the returns and fully understand whether the performance was achieved in a method consistent with the stated investment strategy.
92. Fund Managers and other prospective investors typically do not have publicly-available data with which to perform Performance-related due diligence. Therefore, data is often

¹⁰¹ GEOFFREY HIRT & STANLEY BLOCK, FUNDAMENTALS OF INVESTMENT MANAGEMENT 7 (7th ed. 2003).

¹⁰² Merkin Dep. 87:20-92:3, February 24, 2015.

¹⁰³ Merkin Dep. 139:6-23, February 24, 2015. An article in 1993 discusses how service providers such as custodians were providing up-to-the-minute reports on transactions and holdings, and providing information enabling investors to perform performance attribution analysis. Andrew Sollinger, *In search of the perfect system*, Institutional Investor (March 1993).

gathered in due diligence through DDQs, containing questions related to:¹⁰⁴

- Gross long and short performance;
- Currency adjustments;
- Management fees;
- Accrued incentives;
- Other fund expenses; and
- Net performance.¹⁰⁵

5. Price

93. Finally, the fees charged by an investment advisor are key components of the investment management process. Fees for investment advisors typically consist of management fees and/or performance fees. It is both customary and essential that the compensation structure be created in a way so as to align the interests of the advisor and the Fund Manager.
94. As it relates to aligning interests, within the investment management industry, it is not just common, but expected, for advisors to have their "skin in the game."¹⁰⁶ This is to ensure an alignment of interests between the investor and the advisor not just in good times, but in bad times as well. Since hedge funds typically have performance fees, which allow the advisors excess compensation commensurate with their positive performance, it is considered only reasonable and hence expected, that they be willing to suffer personal losses in the event that their investments decline.

¹⁰⁴ In a 2004 DDQ, Merkin was asked for performance data including historical performance since inception, monthly Net Asset value since inception, and monthly rate of return since inception. In addition, Merkin was asked to explain any major factors affecting performance and drawdowns, how performance for each account was calculated, and how often. *See* Aozora Bank Due Diligence Questionnaire, June 2004 (BS00528297 at 298-307); *see also* BS00143299 at 299-316.

¹⁰⁵ In a 2007 Cambridge Associates DDQ, Merkin was asked for an array of performance data, including gross long and short performance, currency adjustments, management fees, fund expenses, and net performance. *See* Cambridge Associates Due Diligence Questionnaire, June 2007 (BS00527975 at 977-989).

¹⁰⁶ Merkin Dep. 280:6-19, February 24, 2015.

95. As with the other four Ps above, DDQs typically address pricing issues as well.¹⁰⁷ For example, DDQs will often include questions about the following:

- Management fees;¹⁰⁸
- Administration fees;
- Incentive fees;¹⁰⁹
- Hurdle rate/high water mark;¹¹⁰ and
- Sales fees, redemption fees, and other fee-related topics.

C. Conclusion

96. It is custom and practice in the investment management industry to perform due diligence analyses. There are two general periods when due diligence is performed: (i) initial due diligence is performed before an investment is made; and (ii) ongoing/monitoring due diligence is performed while invested with an advisor.

97. Generally, the due diligence process (both before and after an investment is made) is designed to identify red flags relating to an investment as early as possible. A comprehensive framework for conducting due diligence centers around the Five Ps of: Process, Portfolio, People, Performance, and Price.

VI. OPINION NO. 2

DUE DILIGENCE CONSISTENT WITH INDUSTRY CUSTOMS AND PRACTICES WOULD HAVE REVEALED NUMEROUS RED FLAGS RELATING TO THE MERKIN BLMIS ACCOUNTS

98. Due diligence consistent with industry customs and practices would have revealed

¹⁰⁷ See, e.g., BS00528297 at 300; BS00528392 at 933.

¹⁰⁸ Ascot Fund Limited DDQ (BS00020935 at 935-953).

¹⁰⁹ See, e.g., Yeshiva University Alternative Investment Summary Report, 2006 (BS00278165 at 1666); Ariel Fund Ltd Questionnaire for Due Diligence of Hedge Fund Managers requested by Aozora Bank (BS00528297 at 710).

¹¹⁰ See, e.g., BS00111678 at 678.

numerous red flags related to the Merkin BLMIS Accounts. For example, there were certain transactions that were impossible and the only rational or reasonable explanation was fraud. There were also numerous red flags relating to the Merkin BLMIS Accounts that were indicia of fraud, inconsistent with industry customs and practices, and/or inconsistent with the Madoff SSC strategy. Furthermore, many of the red flags would have prompted additional quantitative due diligence on the purported execution of the strategy. As discussed below, additional quantitative due diligence in areas related to the purported execution of the strategy would have revealed significant red flags where the only reasonable explanation was fraud.

99. The following section describes what would have been revealed had due diligence consistent with industry customs and practices been performed on the Merkin BLMIS Accounts.¹¹¹ Regardless of whether due diligence is initial or ongoing/monitoring, a comprehensive template or framework for conducting due diligence centers around the “Five Ps,” as discussed above, where each “P” relates to a particular element of due diligence. The due diligence analyses performed below on the Merkin BLMIS Accounts and the implementation of the Madoff SSC strategy tracks the same Five Ps framework discussed above in Section V: an analysis of Process, Portfolio, People, Performance, and Price.

A. Process

100. Performing Process-related due diligence on the Madoff SSC strategy would have included analysis of the investment strategy and execution process, including strategy expectations, scalability, investment management style, implementation of investment ideas, buy and sell disciplines, risk management, investment research, team approach,

¹¹¹ As a Fund Manager, Merkin received dozens of requests from potential and current investors for information regarding the funds he managed. I have reviewed these documents, and they are consistent with industry customs and practices for due diligence related to Process, Portfolio, People, Performance, and Price as discussed above.

and review of the use of technology and service providers and infrastructure.

101. A Process-related analysis of the Madoff SSC strategy would have identified numerous red flags, including: (i) impossibilities where the only reasonable explanation was fraud; (ii) indications that Madoff was not executing the purported strategy; (iii) inconsistencies with the strategy; and (iv) inconsistencies with industry customs and practices.

1. Overview of BLMIS's Purported Investment Strategy: Split-Strike Conversion

102. The first step in Process-related due diligence is to understand, as best as possible, the strategy being implemented by the investment advisor. The Madoff SSC strategy purportedly implemented by Madoff for the Merkin BLMIS Accounts was a version of the SSC strategy.
103. Generally, the SSC strategy involves buying a security, buying “insurance” to protect against losses, and giving up gains in order to afford the insurance.¹¹² The insurance to protect against losses is called a “put option,” and the investor buys a put option to protect against the stock falling in value below a certain point.¹¹³ The gains are limited through a security called a “call option,” and the investor sells a call option in order to afford the insurance.¹¹⁴ When an investor attempts to reduce his or her position's exposure to market prices by purchasing puts and/or selling calls, he or she is said to be “hedging” the position.

¹¹² Merkin Dep. 115:24-116:23, 264:9-11, February 24, 2015.

¹¹³ In exchange for an upfront payment, the put option buyer receives the right to sell the underlying stock at a particular price (the “strike price”). The option to sell the underlying stock has a fixed time frame, and is said to be “exercised” if the put option holder decides to sell the underlying stock at the strike price. In other words, the put option buyer “exercises” his or her right to “put back” the asset at a given price. Technically, American-style options can be exercised at any time through the date of expiration while European-style options can only be exercised on the date of expiration. This report discusses only the former, as OEX options on the S&P 100 are American-style. (http://www.cboe.com/LearnCenter/pdf/OEX_12-05-01.pdf).

¹¹⁴ A “call option” on a stock provides the buyer of the call option with the right to purchase the underlying stock at a particular price (the strike price) in exchange for an upfront payment. The option to purchase the underlying stock has a fixed time frame, and is said to be “exercised” if the call option buyer decides to purchase the underlying stock at the strike price.

104. Buying the put option and simultaneously selling the call option is referred to as implementing a “collar” in the SSC strategy. In effect, the investor purchases a put option to provide protection on the downside (i.e., to limit losses the investor would incur if the market value of the equity portfolio drops), which is at least partially paid for by selling a call option that limits the upside (i.e., any large gains in the equity portfolio will be offset by payment made to the buyer of the call option).¹¹⁵
105. Initially Madoff implemented an SSC strategy that was very similar to what is described above. Pursuant to the Madoff SSC strategy, BLMIS purportedly bought a stock, bought a put option on that stock, and sold a call option on that stock.¹¹⁶ This initial version of the Madoff SSC strategy using individual stocks and options on individual stocks was reflected on the Defendant Funds’ BLMIS customer statements through 1991.¹¹⁷
106. An example may be helpful in this regard. Consider an investor who has \$50 and decides to invest it in Disney, which is trading at \$50 per share, and therefore buys a share of Disney for \$50. In this case the investor could lose up to \$50 if the value of Disney declines, but also has an opportunity to double the investment if Disney doubles in value. Many investors buy and sell stocks in this manner in the hope of identifying companies that will increase in value.
107. However, in this simple example the investor could lose all \$50. What if an investor was not willing to lose all \$50? What if they were only willing to lose \$1? In that case, in order to protect against losing all \$50, an investor could buy insurance to effectively limit the losses that could occur. For example, an investor could buy insurance that would

¹¹⁵ See CFA Institute, *Alternative Investments, Risk Management, and the Application of Derivatives CFA Program Curriculum, Level III, Vol. 5*, 391-395 (2014). It is for this reason that the strategy may be used by individuals seeking to protect large concentrated positions in a single stock.

¹¹⁶ See, e.g., October 1990 customer statements for account 1-00148 (later renamed “1A0042”) (MF00027830), (MF00027831). BLMIS purportedly purchased stock of General Electric Co, Atlantic Richfield Co, Disney, and 3 other companies. BLMIS purportedly purchased a put and sold a call for each of the 6 companies.

¹¹⁷ See, e.g., Statement for Ariel Capital LP (account number 1-00148-3) (December 31, 1990) (MF00024410); Statement for Ariel Capital LP (account number 1-00148-4) (December 31, 1990) (MF00024412).

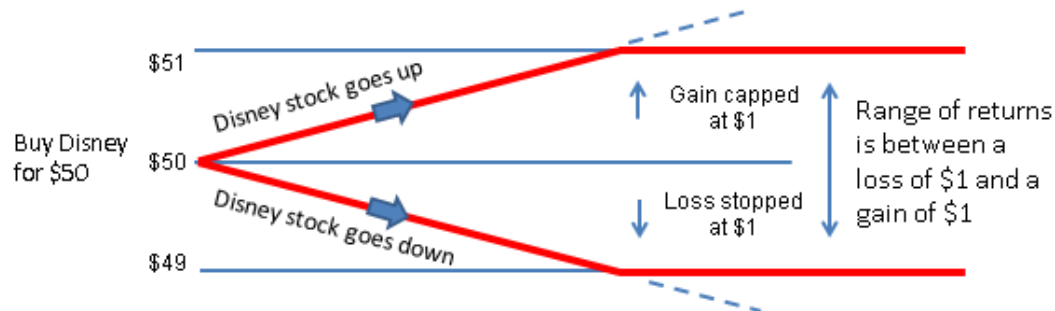
limit losses to \$1, so that if the price of Disney fell to \$40 (i.e., more than \$1 below \$50) the investor could sell the stock at \$49 and only lose \$1 (\$50 less \$49) instead of \$10 (\$50 less \$40). For investors who are not willing to lose all \$50, insurance may be a useful tool.

108. However, insurance is not free. Therefore the investor has to find a way to afford the insurance since they already spent their \$50 on the Disney stock. One alternative is to give up (or sell) gains in the Disney stock above a certain level. For example, the investor might be willing to make only \$1 on the Disney stock and therefore be willing to give away gains if the stock goes up by more than \$1; so that if the price of Disney went up to \$60 (i.e., more than \$1 above \$50) the investor would only be able to sell the stock for \$51 and make \$1 instead of \$10. Someone else might be willing to pay for this opportunity, i.e., the opportunity that the Disney stock might increase above \$51. The money made from selling this opportunity could be used by the investor to pay for the insurance discussed above. In this way the investor only has to have enough money to buy the stock, and has effectively limited the downside (i.e., they won't lose more than \$1) by giving up the upside (i.e., they won't make more than \$1) regardless of how far the stock goes up or down.¹¹⁸
109. A graphical depiction of the example using the Disney stock is illustrated in Figure 1. As Figure 1 illustrates, the SSC strategy limits how much the investor can lose, but also limits the how much the investor can gain.¹¹⁹

¹¹⁸ See, e.g. Trustee Exhibit 144 (SMC-NYAG000001 at 001-002).

¹¹⁹ Merkin Dep. 110:21-113:12, February 24, 2015.

Figure 1
SSC Example Using Disney Stock



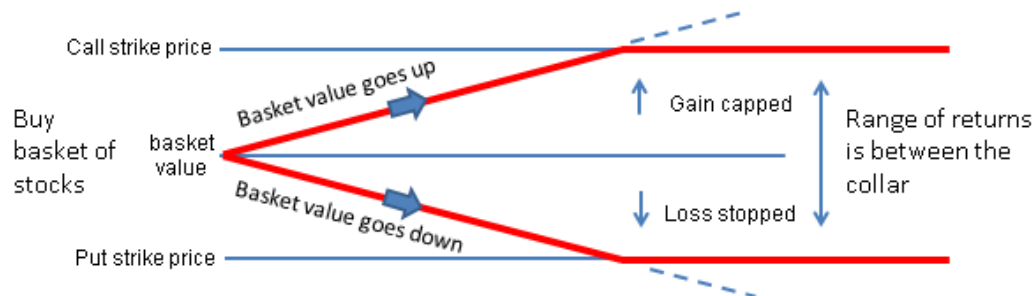
110. Then, beginning in 1991, Madoff purportedly began to implement the strategy using a basket of stocks in the S&P 100 Index, selling call options on the Index, and buying put options on the Index.¹²⁰ Madoff stated that the basket he purportedly purchased would be “correlated” with the S&P 100 Index by at least 95%, meaning that the value of his subset of stocks moved in a manner similar to the S&P 100 Index.¹²¹ While this correlation would likely not be one-to-one, at a minimum, movements in the same direction and in similar degrees would be virtually guaranteed during the time when Madoff purported to be in the market.
111. A graphical depiction of the Madoff SSC strategy using a basket of stocks is illustrated in Figure 2. As Figure 2 illustrates, the Madoff SSC strategy limits how much the investor can lose, but also limits how much the investor can gain.¹²²

¹²⁰ Statement for account number1-05124-3-0 (later renamed 1FN004-3), July 31, 1991 (MF00485246); Statement for account number1-05124-4-0 (later renamed 1FN004-4), July 31, 1991 (MF00485248); Merkin Dep. 121:21-122:4, February 24, 2015; Trustee Ex. 363 (Handwritten Note, May 23, 1995) (GCC-P 0393211); Trustee Ex. 360 (Trading Authorization Directive, October 22, 2002) (GCC-SEC 0027370-381). The S&P 100 Index is value-weighted, meaning that companies with larger market capitalization impact the value of the index more than companies with smaller market capitalization. Market capitalization equals the number of shares of stock multiplied by the current price per share. (See <http://www.standardandpoors.com/indices/sp-100/en/us/?indexId=spusa-100-usdof--p-us-l-->).

¹²¹ Trustee Ex. 360 (Trading Authorization Directive, October 22, 2002) (GCC-SEC 0027370-381 at 380-381).

¹²² *Jesselson v. Merkin*, Hearing Transcript 691:11-696:8, September 13, 2011; *In re Madoff Charities Investigation*, Merkin Dep. 13:9-14:3, January 30, 2009.

Figure 2
SSC Example Using Basket of Stocks



112. There are certain expectations given the Madoff SSC strategy. First, the investor's returns should have moved in the same direction as the underlying stock, or, when using baskets, the S&P 100 Index. In this way, the Madoff SSC strategy should have produced returns that were correlated (i.e., related from a statistical perspective) to the returns of the underlying stock or the S&P 100 Index. There should have been some relationship between the purported returns of the Madoff SSC strategy and the returns of the underlying stock or the S&P 100 Index.
113. Second, when the Madoff SSC strategy purportedly generated gains, the largest gains should not have been as big as the largest gains in the underlying stock or the S&P 100 Index because the Defendant Funds had given away some of their gains.¹²³ Similarly, when the Madoff SSC strategy purportedly generated losses, the largest loss should not have been as big as the largest loss in the underlying stock or the S&P 100 Index because the Defendant Funds purportedly bought insurance. By way of the collar, the put option should have created a floor for the returns and the call option should have created a ceiling.
114. As a result, the Madoff SSC strategy was structured in a way for investors to reduce

¹²³ *Jesselson v. Merkin*, Hearing Transcript 691:11-696:8, September 13, 2011.

risk,¹²⁴ where risk generally refers to the volatility of returns.¹²⁵ In other words, a strategy is very risky if its returns fluctuate widely over time. For example, a strategy that ranges between -1% and +1% has less volatility than a strategy that ranges between -10% and +10%. Because the latter strategy has a much higher level of volatility and predicting the next month's returns would be very difficult, it would be considered a much riskier investment. However, while a goal of the Madoff SSC strategy is to reduce wide fluctuations in returns over time, it would be impossible to eliminate fluctuations altogether.

115. Additionally, while the SSC strategy can be successful at reducing volatility, it is difficult to generate gains without introducing some level of volatility. The gains are based on the size of the pre-determined range of returns set by the call and put option strike prices (i.e., the collar). This collar in turn introduces a band within which volatility would be expected. In each purported implementation of the Madoff SSC strategy, the strike prices on the call and put options defined the pre-determined range discussed above, and set an expectation as to the volatility of the returns. In other words, for the Madoff SSC strategy to have generated gains, it would typically have had some level of volatility.
116. There is also a timing element to the Madoff SSC strategy. That is, whether the strategy was executed using stocks or baskets, Madoff purportedly executed the strategy over days, months, or in some cases more than a year. For example, the first purported execution of the strategy occurred in October 1990 when BLMIS purportedly purchased for Ariel's BLMIS account (account number 1A0042) 4,300 shares of Atlantic Richfield Co. at a price of \$131.75 per share.¹²⁶ A collar was initiated by purportedly selling

¹²⁴ Investors face different types of risk, often characterized as financial or non-financial risk. Market risk associated with exposure to changing stock prices, which is one source of financial risk, is particularly present in equities. Unless otherwise stated, the "risk" discussed herein refers to market risk.

¹²⁵ An asset's volatility is often measured as its standard deviation. See CFA Institute, *Alternative Investments, Risk Management, and the Application of Derivatives CFA Program Curriculum, Level III, Vol. 5*, 82 (2014).

¹²⁶ There were 5 other equities also purchased on October 3, 1990. An option collar was created for each equity position using put and call options on each individual security.

Atlantic Richfield Co. call options with a strike price of \$140 and a January 1991 expiration and by purportedly buying Atlantic Richfield Co. put options with a strike price of \$130 and a January 1991 expiration. In January 1991, BLMIS purportedly repurchased the January call options and sold new call options with an April 1991 expiration and strike price of \$130 to maintain the strategy. Similarly in January 1991, BLMIS purportedly sold the January put options and bought new put options with an April 1991 expiration and a strike price of \$120. This process is called “rollover” because the options are effectively rolled over to an expiration date further into the future. A similar “rollover” purportedly occurred in April 1991. Eventually, on July 19, 1991 (approximately 9 months after the initial equity purchase) BLMIS purportedly sold the 4,300 shares of Atlantic Richfield. The call options and put options expired out of the money.

117. In 1991, Madoff began purportedly executing the SSC strategy with baskets of stocks. The first basket, which included 15 stocks, was purportedly bought on July 23, 1991. The collar was initiated on the same date using options on the S&P 100 Index with an expiration of August 1991. Options were purportedly rolled over periodically, and the size of the basket changed at different points in time, until November 15, 1991 (approximately 4 months after the basket was initiated), when all the stocks in the basket were purportedly sold, the put options were sold, and the call options were repurchased. The proceeds from unwinding the strategy were purportedly invested in treasury securities until the next basket was initiated on December 2, 1991.
118. Starting in December 1991, Madoff began purportedly executing the SSC strategy exclusively with baskets of stocks. On December 2, 1991, a basket of 15 stocks was purportedly bought.¹²⁷ The collar was initiated on the same date using options on the

¹²⁷ While the first basket of stocks included 15 stocks and the second basket included 14 stocks, over time the number of stocks in the basket grew to roughly 30 in the late 1990s, roughly 40 in the early 2000s, and by October 2006 Madoff was purportedly including 50 stocks in the basket.

S&P 100 Index with an expiration of January 1992. Options were purportedly rolled over periodically, and the size of the basket changed at different points in time, until May 4-7, 1993 (approximately 17 months after the basket was initiated), when the stocks in the basket were purportedly sold, the put options were sold, and the call options were repurchased.

119. As these examples illustrate, the time over which the strategy was purportedly executed on a single stock or on a basket of stock was inconsistent (ranging from 4 to 17 months in the example above). Similarly, the number of days that Madoff was not purportedly executing the strategy, but rather invested in treasury securities (*i.e.*, he was not “in the market”), was also inconsistent. For example, from 1992 through 1996, the Merkin BLMIS Accounts were out of the market for an average of 30 days per year, with no more than 75 days in any given year. However, from 1997 through 2008, the Merkin BLMIS Accounts were out of the market for an average of 161 days per year, with no less than 75 days in any given year.

2. Purported Implementation of the Madoff SSC Strategy

a) No Downside Risk

120. In executing the Madoff SSC strategy that began in 1991, Madoff purportedly selected a basket of stocks in the S&P 100. Thus Madoff’s position would also have been expected to move with the overall S&P 100 when its value was between the put and call strike prices.¹²⁸ However, the returns for the Merkin BLMIS Accounts did not move in the same direction as the S&P 100. For example, since the S&P 100 incurred losses 40.7% of the time (83 out of 204 months) from December 1991 through November 2008, the Madoff SSC strategy should have experienced at least some material percentage of negative return months.¹²⁹ However, the Merkin BLMIS Accounts reflected negative

¹²⁸ Merkin Dep. 259:16-261:14, February 24, 2015.

¹²⁹ Calculated based on Bloomberg Market Data.

return months less than 4% of the time (8 out of 204 months) over that time period.

121. Because of the pre-determined range defined by the strike prices, it would have been mathematically impossible for anyone implementing the Madoff SSC strategy to eliminate downside risk, as Madoff did, while generating returns in excess of default risk-free Treasury returns over any significant period of time.¹³⁰ As stated in a 2001 MAR/Hedge article, “the best known entity using a similar strategy, a publicly traded mutual fund dating from 1978 called Gateway, has experienced far greater volatility and lower returns [than Madoff] during the same period.”¹³¹ The inability to match the Madoff SSC strategy with the reported returns for the Merkin BLMIS Accounts was a red flag that Madoff was not executing the purported strategy.

b) Impossible Option Volumes¹³²

122. Reviewing the customer statements for the Merkin BLMIS Accounts, which Merkin received and tracked, along with readily available market data, due diligence would have shown that BLMIS was reporting option trading volume widely in excess of the total daily volume on the option exchanges.¹³³ Based on a review of total daily volumes on the Chicago Board Options Exchange (“CBOE”, the exchange on which OEX S&P100 Index options are traded)¹³⁴ for various options, it simply was not possible that BLMIS

¹³⁰ The stability of Madoff’s returns becomes progressively less and less likely as the analysis period increases.

¹³¹ Trustee Ex. 363 (Michael Ocrant, *Madoff Tops Charts; Skeptics Ask How*, MAR/HEDGE, May 2001) (GCC-P 0393336-339).

¹³² I also reviewed the volumes of trades that BLMIS purported to make with U.S. Treasuries. Despite the large volume of treasuries issued by the U.S. Government, there are 6 instances where Merkin held more than 10% of the total issuance of a particular U.S. Treasury. In fact, there is one example where Merkin’s U.S. Treasury holdings are 55% of the total issuance of that particular U.S. Treasury (CUSIP 912795PX3 on December 28, 2003). These numbers would be even higher assuming that Madoff was buying U.S. Treasuries for other accounts besides Merkin.

¹³³ Merkin indicated that he made this comparison himself. *Wiederhorn v. Merkin*, Hearing Transcript 221:3-222:4, December 3, 2009.

¹³⁴ As part of the Madoff SSC strategy, BLMIS purportedly traded call and put options on the S&P 100 Index. The trade confirmations for the Merkin BLMIS Accounts reflected a CUSIP number and OEX ticker for the S&P 100 Index options indicating the options were traded on the CBOE as opposed to custom “Over-The-Counter” (“OTC”) contracts that are not traded on an exchange. Trade Confirmation for Ariel Fund Ltd (Trade Date May

was trading the number of options indicated on the customer statements.

123. For the time period October 1990 through November 2008, BLMIS purportedly traded in 354 different call options on 628 days in 2,467 transactions for the Merkin BLMIS Accounts.¹³⁵ I compared the volume of call options purportedly traded for the Merkin BLMIS Accounts against the market, and 53.7% had a number of contracts above the daily market volume for the relevant option and trade date.¹³⁶ Looking further specifically into the transactions that traded above the daily market volume, I found that the number of shares transacted by Madoff greatly exceeded the total share volume transacted on the exchange. In addition, there were 15 instances where BLMIS reported buying or selling call options for the Merkin BLMIS Accounts when there was no volume traded on that day.¹³⁷ Figure 3 illustrates these impossible call option share results. (*See also Schedule 1.*)

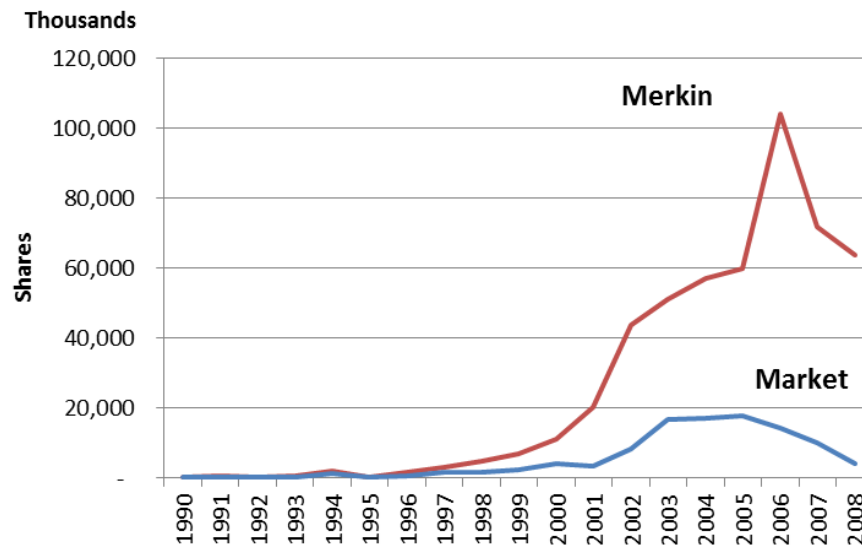
15, 2006) (BS00015518 at 518-522); Trade Confirmation for Ascot Partners LP (Trade Date April 18, 2008) (BS00008481 at 481-84).

¹³⁵ Settled Cash table, StorQM Customer Statements, Customer Ledgers, and CBOE Market Data.

¹³⁶ Options are traded as a “contract” where each contract represents 100 options. The number of call and put contracts bought or sold by BLMIS was determined based on the purported equity positions as consistent with the Madoff SSC strategy. In determining how many transactions included contracts above the daily market volume, I aggregated volume across the Merkin BLMIS Accounts; therefore the 53.7% reflects the percentage of unique transactions in the Merkin BLMIS Accounts with volume above the daily market volume. The 2,467 total number of transactions reflects 816 unique transactions with a specific transaction date, strike price, and maturity—53.7% of which had reported volumes above the daily market volume.

¹³⁷ For example, on October 18, 2001, BLMIS reportedly bought 2,244 S&P 100 Index October 505 Call option contracts for Ascot’s BLMIS account (1A0058). According to CBOE Market Data, this option was not bought or sold on that day.

Figure 3
Merkin BLMIS Accounts Call Option Volume Relative to Corresponding
Market Volume 1990-2008¹³⁸



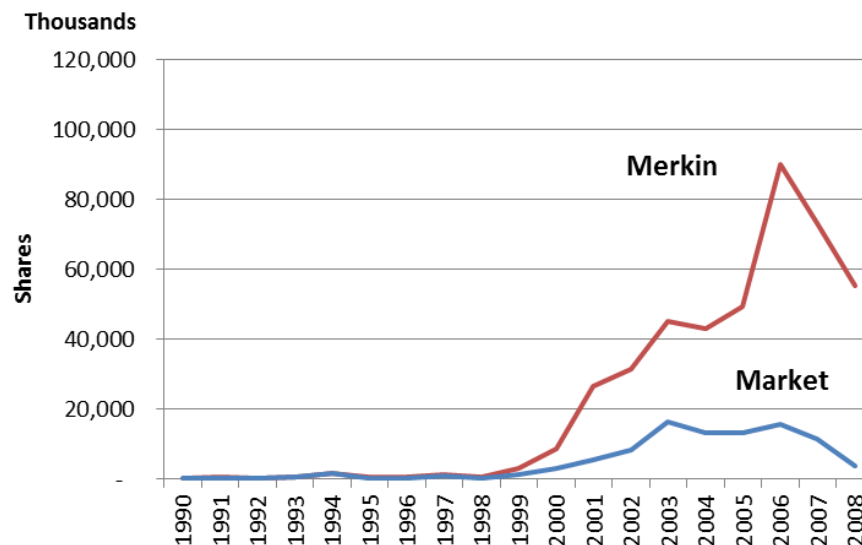
124. Similarly, as it relates to put options, BLMIS purportedly traded 374 different put options on 594 days through 2,272 transactions from 1990 through 2008. For the unique transactions of put options, 48.5% had a purported number of contracts above the daily market volume.¹³⁹ Similar to the call options, for the put contracts which BLMIS purportedly traded above the daily market volume, the number of shares transacted for the Merkin BLMIS Accounts greatly exceeded the total share volume transacted in the market. Furthermore, as with the call options, there were 15 instances where BLMIS reported buying or selling put options for the Merkin BLMIS Accounts when there was

¹³⁸ Includes option trades made between 1990 and 2008, where the transacted volume for the Merkin BLMIS Accounts was greater than the market volume. Sources include Settled Cash table, StorQM Customer Statements, Customer Ledgers, and CBOE Market Data.

¹³⁹ In determining how many transactions included contracts above the daily market volume, I aggregated volume across the Merkin BLMIS Accounts; therefore, the 48.5% reflects the percentage of unique transactions in the Merkin BLMIS Accounts with volume above the daily market volume. The 2,272 total number of transactions reflects 757 unique transactions with a specific transaction date, strike price, and maturity—48.5% of which had reported volumes above the daily market volume.

no volume traded on the respective day.¹⁴⁰ Figure 4 illustrates these impossible put option share results. (*See also Schedule 2.*)

Figure 4
Merkin BLMIS Accounts Put Option Volume Relative to Corresponding
Market Volume 1990-2008¹⁴¹



125. BLMIS not only purportedly purchased or sold options in quantities far above the daily volume, the customer statements for the Merkin BLMIS Accounts also reflected that the Defendant Funds purportedly owned far more options than existed in the market. For the period 2000 through 2008, based on the customer statements, on average, the Defendant Funds purportedly owned more call options than those in existence on the exchange for 116 days out of each year. Similarly, on average, the Defendant Funds purportedly owned more put options than those in existence in the market place for 123 days out of

¹⁴⁰ For example, on October 16, 1991, BLMIS reportedly sold 25 Walt Disney Productions October 115 put option contracts for Ariel's BLMIS account (1A0042). According to CBOE Market Data, this option was not bought or sold on that day.

¹⁴¹ Includes option trades made between 1990 and 2008. Sources include Settled Cash table, StorQM Customer Statements, Customer Ledgers, and CBOE Market Data.

each year.¹⁴²

126. Additionally, these figures reflect the Merkin BLMIS Accounts only. Madoff had billions of other dollars under management, meaning that the volumes necessary to implement the Madoff SSC strategy were even more beyond market capacity.
127. While the trade confirmations for the Merkin BLMIS Accounts indicated that the purported options transactions were exchange-traded (based on the name and CUSIP number), I have also considered the possibility that these purported transactions were done off the exchange, or OTC. I have concluded that the transactions could not have been done OTC for the following reasons:
- OTC transactions tend to be in the \$5-\$25 million dollar range which would have required 280 to 1400 transactions to be done across multi-billions of dollars in assets with theoretically many sophisticated global counterparties. Any larger OTC transactions would be have been done only on an appointment or negotiated basis and would require days, weeks, or even months to negotiate;
 - Counterparties to the trades, whoever they might have been, would themselves have to offset their own risk (i.e., hedge) which would likely have to be done back in the exchange-traded market. Therefore, if there was insufficient volume in the exchange-traded market, then there would have been insufficient volume for BLMIS's counterparties in the OTC market to absorb and then lay off this transferred risk;
 - There do not appear to be any written agreements, such as International Swaps and Derivatives Association ("ISDA") agreements that would have been necessary to execute these transactions OTC. OTC contracts are bilateral, privately negotiated contracts that typically require documentation between the trading parties;

¹⁴² Based on transaction data in the Settled Cash table as well as daily open interest data from the CBOE for the options purportedly owned by the Defendant Funds.

- Every trade confirmation for S&P 100 Index options purportedly traded in the Merkin BLMIS Accounts that I have reviewed included a CUSIP for the transaction. However, I am not aware of any OTC transactions that have CUSIPs, if for no other reason than there is no economic rationale to do so because CUSIPs require a fee.¹⁴³
- Of the 330 unique put and call options purportedly purchased and sold by BLMIS for the Merkin BLMIS Accounts between 2000 and 2008, all but 1 of the options included a CUSIP that was assigned to the CBOE.¹⁴⁴ That is, virtually all of the option securities that BLMIS reported to purchase could only have been purchased on the CBOE. They could not have been purchased OTC.
- Every trade confirmation for S&P 100 Index options purportedly traded in the Merkin BLMIS Accounts that I have reviewed listed relevant Defendant Fund as the counterparty (called “contraparty” on the trade confirmation), instead of the actual counterparty. It is industry custom and practice to list the counterparty to an OTC transaction on a trade confirmation, so that at a minimum the customer can assess the counterparty risk associated with the trade.¹⁴⁵

¹⁴³ *Master OTC Options Agreements (2000 Version)*, SECURITIES INDUSTRY AND FINANCIAL MARKETS ASSOCIATION (SIFMA), 015. [https://www.sifma.org/services/standard-forms-and-documentation/government-securities/government-securities_master-otc-options-agreement-\(2000-version\)/\(last visited March 19, 2015\)](https://www.sifma.org/services/standard-forms-and-documentation/government-securities/government-securities_master-otc-options-agreement-(2000-version)/(last%20visited%20March%2019,%202015);); *See also*, AITE GROUP, LLC, TRENDS IN OTC EQUITY DERIVATIVES: WHERE DO WE GO FROM HERE? 11 (2006), available at <http://164.109.172.95/downloads/leadership/whitepapers/Trends-in-OTC-Equity-Derivatives.pdf>; CUSIPs are not free. The fee for CUSIP registration as of 2015 is \$165 and \$25 for each additional maturity per series. *Standard Fees for CUSIP Assignment (as of 1/1/2015) & Approximate Turnaround Time, Apply for a New Identifier*, CUSIP GLOBAL SERVICES, <https://www.cusip.com/cusip/request-an-identifier.htm> (last visited March 19, 2015).

¹⁴⁴ The first six digits of a CUSIP identify the issuer of the security. With the exception of the one option trade using a different CUSIP using the six digits 783791, all of the reported options for the Merkin BLMIS Accounts between 2000 and 2008 used the six digits 783790 in the CUSIP. This code is specifically assigned to CBOE, and designates OEX options, which are trademarked by the CBOE. *See generally* CHICAGO BOARD OPTIONS EXCHANGE, OEX AND XEO S&P 100 OPTIONS (2001). *See also*, Chicago Board Options Exchange, *OEX Product Specifications, OEX S&P100 Index Options*, CBOE, http://www.cboe.com/products/indexopts/oex_spec.aspx (last visited March. 19, 2015).

¹⁴⁵ *Master OTC Options Agreements (2000 Version)*, SECURITIES INDUSTRY AND FINANCIAL MARKETS ASSOCIATION (SIFMA), 015. [\(last visited March 19, 2015\)](https://www.sifma.org/services/standard-forms-and-documentation/government-securities/government-securities_master-otc-options-agreement-(2000-version)).

- If the Defendant Funds had been counterparties to OTC trades, it would have been typical to post margin, yet I have not identified any instances where margin was posted. At minimum, I would expect there to be a netting agreement that would allow the Defendant Funds to use their stock to collateralize the short option position.

For the reasons listed above, all of the purported options transactions could only have been exchange traded.

Based on the purported options being exchange traded, the volume reflected in the Merkin BLMIS Accounts was far in excess of the total market volume more than 50% of the time. These impossible call and put option volumes were a significant red flag and the only reasonable explanation was fraud.

c) Out-of-Range Trades

128. Due diligence on Madoff's execution of the Madoff SSC strategy would have revealed impossibilities related to out-of-range trades. For example, the customer statements and trade confirmations for the Merkin BLMIS Accounts included over 900 instances where BLMIS reported buy and sell equity transactions at prices either above the high stock price for the day or below the low stock price for the day, as reported by Bloomberg.¹⁴⁶ While Merkin indicated that he checked the prices on the trade confirmations he received from Madoff, he only checked to ensure that the prices on the trade confirmations reconciled with the prices on the customer statements, not whether those trade prices could have been legitimate.¹⁴⁷

129. Legitimate trades could not have occurred at all of the prices reported by BLMIS. Since

¹⁴⁶ Examples include the purchase of INTC shares for 3 accounts on October 2, 2003 at \$27.63 when the daily low was \$28.41 and sale of JPM shares for 4 accounts on February 16, 2001 for \$52.59 when the daily high was \$52.00. I adjusted the reported trade prices for the \$0.04 commission that was purportedly included in the share price prior to September 2006. Statement for Ariel Fund Ltd (October 31, 2003) (MDPTTP03181715 at 715-26); Statement for Ascot Partners LP (February 28, 2001) (MDPTTP00019682 at 682-89).

¹⁴⁷ Achillare Dep. 37:9-18, August 9, 2011; *In re Madoff Charities Investigation*, Merkin Dep. 17:17-25, January 30, 2009; *In re Madoff Charities Investigation*, Merkin Dep. 119:19-120:12, January 30, 2009.

Bloomberg collects its stock price data directly from the exchanges as well as OTC, the prices as claimed by BLMIS would have been picked up by Bloomberg had the trade actually occurred.¹⁴⁸ In the cases when BLMIS's purported executed prices were higher than the high for the day or lower than the low, these prices would have become the highs and lows for the day.¹⁴⁹ These occurrences were significant red flags and the only reasonable explanation was fraud, because, simply stated, there was never a trade in the market at the prices BLMIS reported.

(1) Equities

130. Between 1990 and 2008, there were 985 transactions across the Merkin BLMIS Accounts with reported equity prices outside of the daily price range on the day the trade was made.¹⁵⁰ These 985 transactions reflected over 56 million shares traded *outside* of the daily range. The customer statements and trade confirmations for the Merkin BLMIS Accounts reflected transactions *above* the daily price range 393 times, and transactions *below* the daily price range 592 times.¹⁵¹ The total dollar amount purportedly gained through out-of-range equity transactions was over \$10.3 million. For example, on November 7, 1996, BLMIS purportedly bought 41,055 shares of Intel Corp (INTC) at a price of \$113.96 for Ascot's BLMIS account (1A0058), when the low price for the day was \$118.75.¹⁵² This resulted in a purported gain of approximately \$196,000.
131. Over 56 million shares and over 900 transactions reflected on the face of customer

¹⁴⁸ *Pricing Services Ensure Transparency and Consistency*, BLOOMBERG, <http://www.bloomberg.com/enterprise/data/pricing-services/> (last visited March 4, 2015).

¹⁴⁹ Alternatively, had the prices indicated in the account and trading statements been typos or errors, Merkin should have expected corrections from BLMIS with the appropriate prices.

¹⁵⁰ Sources include Settled Cash table, StorQM Customer Statements, Customer Ledgers, and Bloomberg Market Data.

¹⁵¹ The results are based on comparing Settled Cash table, StorQM Customer Statements, and Customer Ledgers against Bloomberg Market Data.

¹⁵² Prior to September 2006, BLMIS did not explicitly identify commissions on customer statements. The trade confirmations stated that the trade price included a commission of \$.04 per share for equities. Accordingly, I have adjusted the reported share prices prior to 2006 to adjust for these commissions. *See, e.g.*, BS00013594 at 595.

statements and/or trade confirmations for the Merkin BLMIS Accounts had impossible equity prices, which meant that these trades did not happen. These impossible trades reported for the Merkin BLMIS Accounts were significant red flags and the only reasonable explanation was fraud. (See **Schedule 3** for a table of out-of-range equity trades by year.)

(2) Options

132. In addition to the impossible equity transactions, over this same time period (1990 through 2008), there were also 382 transactions representing 545,828 options contracts (i.e., 54.5 million option shares) that were traded *outside* of the daily price range across the Merkin BLMIS Accounts. Of these transactions, 282 were traded *above* the daily high and 100 were traded *below* the daily low.¹⁵³ The total dollar amount purportedly gained through out-of-range option transactions was over \$9 million. For example, on May 7, 1997, BLMIS purportedly bought 2,010 May 765 call option contracts at a price of \$33.89 for the Merkin BLMIS Accounts, when the low price for the day was \$44.00.¹⁵⁴ This resulted in a purported gain of over \$2 million.
133. Because these trades were purportedly executed on an exchange, BLMIS could not have been making these impossible trades that were reflected on trade confirmations or customer statements for the Merkin BLMIS Accounts. These impossible out-of-range options trades were therefore significant red flags and the only reasonable explanation was fraud. (See **Schedule 4** for a table of out-of-range option trades by year.)

¹⁵³ Based on comparing Settled Cash table, StorQM Customer Statements, and Customer Ledgers against CBOE Market Data. In addition to the out-of-range trades, there were 6 instances where call options expired in-the-money. That is, in two cases BLMIS purportedly sold a call option, and the holder of the call option let the option expire without exercising it against BLMIS, despite the fact that the S&P 100 price was above the call option strike price on the expiration day (i.e., the option holder could have bought the S&P 100 from BLMIS at a price that was *lower* than the market—generating an instant gain). See, e.g., Statement for Ascot Partners LP (January 31, 2000) (MDPTTP00019555 at 555-56).

¹⁵⁴ I have not adjusted the reported option prices prior to September 2006 for commissions. To the extent that the reported prices included commissions, there may be more out-of-range option trades.

(3) Treasuries

134. In addition to the impossible out-of-range equity and option transactions, BLMIS reported prices for U.S. Treasury Bills in the Merkin BLMIS Accounts that implied yields outside the daily range of yields reported by Bloomberg. Based on yields reported by Bloomberg, over 40% of the U.S. Treasury Bill transactions for the Merkin BLMIS Accounts were traded outside the daily range. However, due to the sensitivity of rounding, and the various ways to calculate prices based on yields, I also calculated what percentage of purported transactions were outside the daily range based on sensitizing the high/low by adding/subtracting between 1 and 10 basis points (i.e., widening the range). As Figure 5 illustrates, even with these sensitivities, over 1000 trades were made outside the daily range plus/minus 1 basis point, and over 200 trades were made outside the daily range plus/minus 10 basis points.

Figure 5
Sensitivity Analysis of Out of Range Trades for U.S. Treasury Bills 2000-2008¹⁵⁵

<u>Basis Point Adjustment</u>	<u>% of Trades Out of Range</u>	<u># of Trades Out of Range</u>
0	44.2%	2,398
1	24.3%	1,321
2	14.4%	784
3	10.7%	581
4	8.9%	483
5	7.5%	406
6	6.3%	342
7	5.5%	300
8	5.0%	273
9	4.3%	232
10	4.1%	220

135. BLMIS could not have been making the trades that were reported on the trade confirmations or customer statements for the Merkin BLMIS Accounts. These

¹⁵⁵ Sources include Settled Cash table, StorQM Customer Statements, and Bloomberg Market Data.

impossible out-of-range U.S. Treasury Bill trades were significant red flags and the only reasonable explanation was fraud. (*See also Schedule 5.*)

d) Unexplained Exposure to Market Risk

136. As discussed above, an SSC strategy is designed as a way for investors to reduce risk. As part of the Madoff SSC strategy, equity purchases are hedged using an option collar, created through the purchase of puts and the sale of calls. The number of options needed to hedge the equity position depends on the value of the equity position (i.e., if more equities are purchased, more options are needed to hedge the position). Therefore, if additional equities are purchased, the option positions need to increase in order to provide an effective hedge. Similarly, when equities are sold, the option positions should be reduced. When the purported hedges are not adjusted based on changes in the value of the equity position, the Merkin BLMIS Accounts are left exposed to market risk,¹⁵⁶ and this additional market risk is not an element of any SSC strategy, let alone the Madoff SSC strategy.
137. On over 300 occasions, statements for the Merkin BLMIS Accounts reflected changes to the basket of equities purportedly purchased for the Merkin BLMIS Accounts, but failed to reflect corresponding changes to the options used to hedge the equity position. BLMIS's actions on each of these occasions was inconsistent with the Madoff SCC strategy and inexplicably exposed the Defendant Funds to additional market risk.
138. For example, between December 20, 1994 and January 9, 1995, BLMIS purportedly purchased a basket of equities for the Ascot account (1FN005), including MCI Communications Corporation. On January 24, 1995, the entire MCI Communications equity position was sold for approximately \$885,000. The remainder of the equity basket was sold on April 17, 1995. Despite the sale of an equity position of approximately \$885,000 on January 24, 1995, there was no corresponding adjustment made to the option

¹⁵⁶ Merkin Dep. 103:25-104:3, February 24, 2015.

positions.

139. Similarly, between January 16, 2001 and January 17, 2001, BLMIS purportedly purchased a basket of equities for the Ascot account (1A0058), including EMC Corporation. On February 7, 2001, the entire EMC Corporation equity position was sold for approximately \$10.7 million. The remainder of the equity basket was sold between February 14, 2001 and February 16, 2001. Despite the sale of an equity position of more than \$10 million on February 7, 2001, there was no corresponding adjustment made to the option positions. There were similar sales of EMC Corporation equity positions from three other Merkin BLMIS accounts (1FN005, 1FR070, and 1G0321) on February 7, 2001, totaling an additional \$14 million. Despite the combined \$25 million in equity sales across these four accounts, there were no adjustments made to any of the option positions in the accounts. (*See also Schedule 6.*)
140. In addition to the sale of equity securities without corresponding hedge adjustments, there were also instances in which there were delays in putting on part of the option collar. In the Former Ascot Fund account (1FN005) for example, there were three separate instances during 1994 in which there were timing issues around the purchase and sale of the option collar. For example, on September 12, 1994, BLMIS purportedly bought approximately \$357,000 of equities. On the same day, BLMIS purportedly bought 900 put options, creating the bottom half of the option collar. However, the 900 call options were not sold (to complete the option collar) until the next day, September 13, 1994. This difference in timing left the fund exposed to additional market risk that is not part of the SSC strategy.
141. Another example of a timing issue related to the option collar occurred in February of 1993. The Former Ascot Fund (1FN005) was in the market, and BLMIS purportedly rolled over the option collar from options expiring in February to options expiring in March. However, the 2,035 March call option contracts were sold on February 12, 1993, while the 2,035 February call option contracts were not bought back until February 16, 1993. As a result of this timing difference, Merkin's Ascot account was exposed to

additional market risk.

142. This failure to adjust the option hedge when the basket of equities changed was a deviation from the Madoff SSC strategy. Failure to follow the stated strategy is suspicious, inconsistent with the Madoff SSC strategy, and should have prompted additional quantitative due diligence on the purported execution of the strategy, including performance attribution, reverse engineering and alpha analysis. As discussed in Sections VI.D.4, VI.B.2 and VI.B.1, due diligence in these areas would have revealed significant red flags where the only reasonable explanation was fraud.

e) Investing in Cash at the End of Each Year Beginning in 1993

143. Madoff's purported execution of the Madoff SSC strategy is inconsistent with the opportunistic nature of the strategy. That is, the ability of Madoff to enter and exit the market at the right time ("market timing") was touted as a key component of the strategy.¹⁵⁷ In this manner the Madoff SSC strategy can be called opportunistic—Madoff would enter and exit the market when the right opportunity presented itself. However, an opportunistic strategy should be agnostic as to whether it is January, March, or any particular month.
144. Entry and exit from the market should theoretically be random. Based on Madoff's frequency of baskets it is possible to calculate the probability of Madoff being out of the market on any particular day (i.e., the probability that there is not an opportunity).¹⁵⁸ For example, from 1993 to 2008, the Merkin BLMIS Accounts were out of the market (i.e., not in a basket), on average, for 130 days per year. This results in a probability of the

¹⁵⁷ Merkin Dep. 158:12-167:13, February 24, 2015; Autera Dep. 171:9-22, October 19, 2011; *New York v. Ascot Partners, LP et al.*, Merkin Dep. 150:11-19, July 1, 2010; *N.Y.U. v. Ariel Fund Ltd. et al.*, Merkin Dep. 137:17-22, February 9, 2009.

¹⁵⁸ Merkin testified that market timing referred to going in and out of the market to catch a turn, and typically this would occur three to six or four to eight times a year. Merkin Dep. 164:4-10, February 24, 2015. Therefore, when Madoff is out of the market it must be because there is no opportunity to catch a turn.

Merkin BLMIS Accounts being out of the market on any particular day of 36%.¹⁵⁹

Therefore, the probability of Madoff being out of the market on December 31 of each year is 36%.

145. This analysis can also be extended beyond one year. For example, the probability of being out of the market on December 31 for five straight years (e.g., from 1993 through 1997) is 0.57%.¹⁶⁰ By the end of 2001, the probability that Madoff would be out of the market for 9 straight years is less than 0.01% (less than 1 in 10,000 chance).¹⁶¹ Madoff was purportedly out of the market at the end of each year for the Merkin BLMIS Accounts from 1993 through 2007 (15 straight years).¹⁶²
146. There is no rationale to avoid the market at the end of each year when implementing the Madoff SSC strategy that was supposedly benefiting from market timing. For example, there is no market stress event at the end of each year that would lead an advisor following a market timing strategy to exit the market. There is no rational explanation for Madoff to be out of the market on these dates with such consistency, which is suspicious, inconsistent with the Madoff SSC strategy, and should have prompted additional quantitative due diligence on the purported execution of the strategy, including performance attribution, reverse engineering and alpha analysis. As discussed in Sections VI.D.4, VI.B.2 and VI.B.1, due diligence in these areas would have revealed significant red flags where the only reasonable explanation was fraud.
147. In addition to being out of the market at the end of each year, Madoff did not maximize returns while out of the market. When not invested in securities, it is consistent with industry customs and practices to put cash in a Short Term Investment Fund (“STIF”), a

¹⁵⁹ $197 / 365 = 0.54$

¹⁶⁰ $0.36^5 = 0.0057$ or 0.57%

¹⁶¹ $0.36^9 = 0.00009$ or 0.009%

¹⁶² Madoff was also out at the end of each quarter for 25 straight quarters beginning in the third quarter of 2002 and proceeding through the third quarter of 2008 (the last quarter before authorities seized BLMIS). The probability of this occurring is less than one in 5,000,000.

diversified liquid pool of Treasuries and other securities such as agency debt and commercial paper.¹⁶³ Instead, Madoff invested in U.S. Treasury Bills during these periods, resulting in a lower return. For example, using comparable commercial paper investments that are prevalent in broker-dealer STIF accounts would have produced an additional \$32 million in investment returns for the Merkin BLMIS Accounts from 2000-2008.¹⁶⁴ It would have been custom and practice for a Fund Manager such as Merkin to inquire as to why Madoff was not maximizing returns while out of the market.

f) Atypical Frequency of Dividends

148. During the periods in which BLMIS was purportedly out of the market, BLMIS purported to invest in U.S. Treasuries, specifically the Fidelity Spartan U.S. Treasury Money Market Fund (the “Fidelity Fund”).¹⁶⁵ The Fidelity Fund paid dividends once per month, always in the first few days or the last few days of the month.¹⁶⁶
149. Typically money market funds declare dividends daily and pay them monthly.¹⁶⁷ However, the statements for the Merkin BLMIS Accounts reflected as many as seven separate Fidelity Fund dividends in a single month. In the month of February 2007, for example, the customer statements for the Ariel account (1FR070), the Gabriel account (1G0321), and the Ascot account (1A0058) each reflected seven separate Fidelity Fund dividends. These dividends purportedly occurred on February 6, February 13, February 16, February 20, February 22, February 23, and February 28. In reality, the Fidelity Fund

¹⁶³ FRANK J. FABOZZI ASSOCS., PERSPECTIVES ON INVESTMENT MANAGEMENT OF PUBLIC PENSION FUNDS 120 (Frank J. Fabozzi ed., 1999).

¹⁶⁴ This is based on a comparison of the yield on 3-month commercial paper and 3-month Treasury Bill by month, considering how many days in each month that Madoff was in Treasuries.

¹⁶⁵ The customer statements for the Merkin BLMIS Accounts reflected the purported purchase and sale of the Fidelity Spartan U.S. Money Market Fund (Ticker: FDLXX). While this fund officially changed its name to Fidelity U.S. Money Market Fund, effective August 15, 2005, the customer statements for the Merkin BLMIS Accounts never reflected the name change, and continued to report the historical, incorrect name.

¹⁶⁶ From 1990 through 2008, all Fidelity Fund dividends were paid either during the first two or last two business days of the month. There were three instances over that time period in which two dividends fell during the same calendar month, but dividends never occurred less than 25 days apart. Bloomberg Market Data.

¹⁶⁷ <https://www.interactivebrokers.com/prospectus/31607A109.pdf>, page 19.

only paid one dividend that month, on February 1, 2007. The next Fidelity Fund dividend was not paid until March 1, 2007.

150. The statements for the Ariel account (1FR070), the Gabriel account (1G0321), and the Ascot account (1A0058) each reflected at least three purported Fidelity Fund dividends in a single month over 20 times.¹⁶⁸ (See **Schedule 7**.) Purported money market dividend payments reflected on the statements for the Merkin BLMIS Accounts that did not match the dates or the frequency of the actual Fidelity Fund dividend payments were suspicious and should have prompted additional due diligence to make sure there was no other suspicious activity on the customer statements. In accordance with industry customs and practices, this due diligence could include a comparison of purported equity, option and U.S. Treasury Bill prices to the daily high and low market prices as well as analysis of option volume.

3. Lack of Scalability

151. Operating any strategy using the S&P 100 has certain associated limitations. Such a strategy is, by design, limited to only 100 stocks, and therefore also limited to the total number of publicly-available shares for these 100 stocks, as well as options on that particular index.
152. By 2001, Madoff was managing at least \$7 billion of AUM.¹⁶⁹ This AUM is not by itself a red flag. However, Madoff's purported operation of the Madoff SSC strategy utilizing the S&P 100, with up to \$7 billion in assets, was a red flag because of the lack of scalability of this strategy.¹⁷⁰ As Merkin stated in a conversation with Madoff, "one of

¹⁶⁸ See, e.g., BS00533860 at 862-76.

¹⁶⁹ *Straus v. Merkin*, Merkin Dep. 238:15-21, June 21, 2011.

¹⁷⁰ Similar to the law of diminishing returns, scalability refers to the concept that as a fund increases its AUM, it becomes increasingly difficult for that fund to find investment opportunities of a scale proportional to the growing size of the fund. In particular, certain trading strategies are only profitable using small amounts of capital, hence the returns those strategies generate as a percentage of the fund decrease as the fund grows larger. Press Release, Alternative Investment Management Association (AIMA), AIMA Launches New Due Diligence

the tenets of the investment business, right or wrong, is that there is some basic connection between size and profitability.”¹⁷¹ This was a topic that Merkin testified he was “very interested in,” noting the popular Wall Street Expression, “The God of size comes to visit everybody.”¹⁷²

153. A useful comparison for purposes of scalability is the Gateway Fund (“Gateway”), a \$1.3 billion publicly-traded fund as of 2001 that implemented an SSC strategy, but did so with the S&P 500.¹⁷³ One of the reasons why Gateway uses the S&P 500 is to avail itself of more securities and more market value, allowing it to invest a larger asset base in the strategy.¹⁷⁴ The SSC strategy tends not to be scalable, and Gateway gives itself as much of an advantage as possible by utilizing up to 500 stocks instead of 100 stocks, and the associated increase in available market value. This means Gateway has significantly more opportunity to implement its strategy than if it relied only on stocks in the S&P 100. This advantage is not limited to the stocks. The volume of options available on the S&P 500 is significantly more than the volume of options available on the S&P 100, again contributing to the ability of Gateway to scale the strategy. Figure 6 illustrates that the notional value of call options (i.e., the number of option shares outstanding times the value of the index at the time) was significantly greater for the S&P 500 than the S&P

Questionnaires (April 12, 2007), http://www.aima.org/en/media_centre/press-releases.cfm/id/51A9EFBE-E15D-4CEC-83A; Vikas Agarwal, Naveen D. Daniel, Narayan Y. Naik, *Flows, Performance, and Managerial Incentives in Hedge Funds* (Glasgow: European Finance Association (EFA) 2003); Roger M. Edelen, Richard Evans, Gregory B. Kadlec, *Scale effects in mutual fund performance: The role of trading costs* (March 17, 2007), <http://ssrn.com/abstract=951367>; Harry M. Kat & Helder P. Palaro, *FundCreator-Based Evaluation of Hedge Fund Performance* (February 22, 2007), <http://ssrn.com/abstract=964301>.

¹⁷¹ Trustee Exhibit 363 at GCC-P 0393364-373; *see also Jesselson v. Merkin*, Hearing Transcript 633, September 13, 2011.

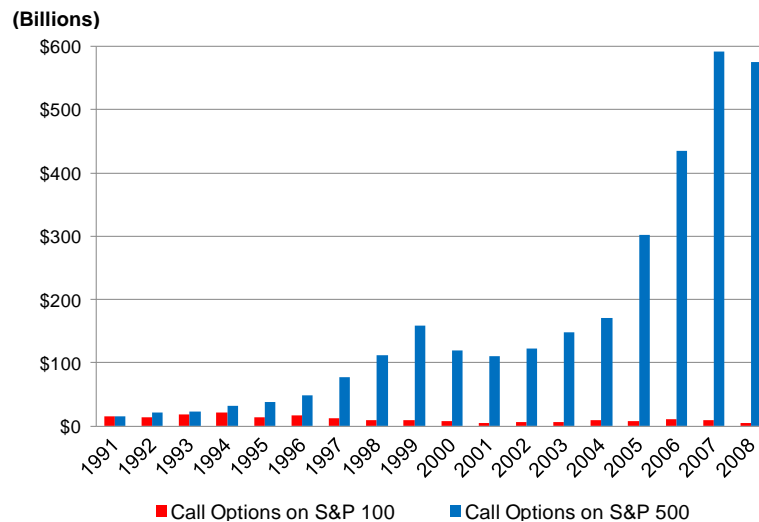
¹⁷² *Straus v. Merkin*, Merkin Dep. 562:10-15, June 22, 2011; Merkin Dep. 143:4-144:12, February 24, 2015.

¹⁷³ Morningstar Direct Database (August 2011); *The Gateway Fund's Hedging Edge, Markets & Finance*, BLOOMBERG BUSINESS (April 20, 2005), <http://www.bloomberg.com/bw/stories/2005-04-20/the-gateway-funds-hedging-edge>. The ticker for Gateway is “GATEX.”

¹⁷⁴ Gateway’s portfolio typically consists of 250 to 400 stocks, as compared to BLMIS’s 35 to 50. GATEWAY TRUST SEC FORM N-1A (July 20, 2007). The market value of the S&P 500 stocks was between 154% and 193% higher than the market value of the S&P 100 stocks between 2000 and 2008. Bloomberg Market Data.

100.

Figure 6
Notional Value of Call Options 1991-2008: S&P 100 v. S&P 500¹⁷⁵



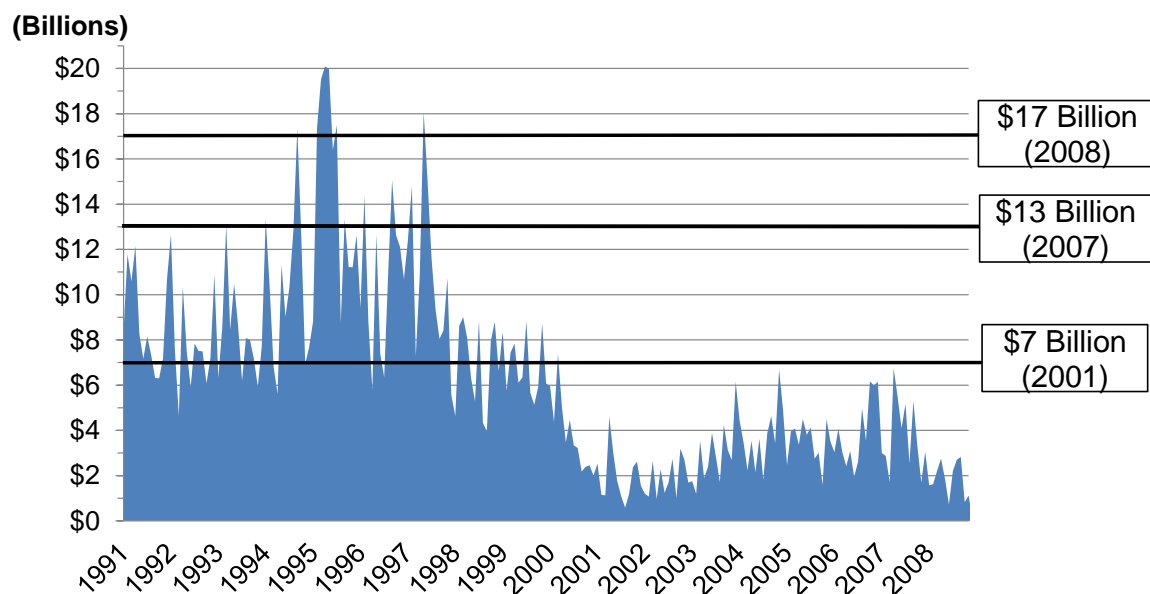
154. Madoff was operating with more assets, fewer stocks, and fewer opportunities than a comparable strategy being implemented by Gateway. Due diligence, consistent with industry customs and practices, would typically have been conducted to understand how, if at all, Madoff was able to do so and still generate consistently appreciable returns.¹⁷⁶
155. A closer analysis of the outstanding notional value for S&P 100 call options reveals that it would have been impossible for Madoff to implement the Madoff SSC strategy. In order to implement the strategy, Madoff needed to sell call options, where the notional value of the call option would have corresponded to the funds invested in the market. That is, if Madoff bought \$100 of stock, he needed to sell approximately \$100 of notional value in call options. Therefore, if Madoff was managing approximately \$7 billion in AUM (as had been reported by 2001) he would have needed approximately \$7 billion in

¹⁷⁵ CBOE Market Data.

¹⁷⁶ Andre F. Perold and Robert S. Salomon, Jr., *The Right Amount of Assets Under Management*, Financial Analysts Journal (May-June 1991).

call options in terms of notional value. However, as the following chart illustrates, by 2001, and every period thereafter there was simply not enough call option notional value to support the Madoff SSC strategy. The issues associated with implementing the Madoff SSC strategy on the S&P 100 with a large asset base were further magnified in 2007 and 2008 when BLMIS publicly disclosed that it was managing \$13 billion and \$17 billion respectively.¹⁷⁷

Figure 7
Notional Value of S&P 100 Call Options¹⁷⁸



156. With growing AUM of \$7 billion to \$17 billion, and using the SSC strategy on the S&P 100, Madoff would not be expected to generate the returns reflected in the Merkin BLMIS Accounts. That Madoff was operating an approximately \$7 to \$17 billion Madoff SSC strategy with the reported returns was a significant red flag and the only

¹⁷⁷ SEC Form ADV, Bernard L. Madoff Investment Securities, January 24, 2007 (PUBLIC0003763 at 771); SEC Form ADV, Bernard L. Madoff Investment Securities, January 7, 2008 (PUBLIC0003834 at 840).

¹⁷⁸ Madoff's strategy required selling call options that were out-of-the-money, therefore the chart depicts the monthly maximum notional value of call options that are out-of-the-money (and expiration date of less than six months). The maximum reflects the highest notional value reported on any day within the month. Data was obtained from CBOE.

reasonable explanation was fraud.

4. Style Drift

157. “Style drift” is used to describe a change in an investment advisor’s investment strategy or goals.¹⁷⁹ For example, if an investment advisor changed from an equities-based strategy to an options-based strategy, or began generating returns based on activities outside the stated investment strategy, these would be considered style drift. There are two examples of style drift related to Madoff: (i) a shift from performing the SSC strategy on individual stocks to an overall basket in the early 1990s; and (ii) the purported purchase and sale of speculative options that generated significant returns.

a) Split Strike Strategy on an Index

158. Madoff’s purported shift in strategy in the early 1990s from buying and selling options on individual stocks to buying and selling S&P 100 options on baskets of stocks constituted an important change in investment strategy.¹⁸⁰ It was an important change because there was little, if any, investment rationale to make the change. An SSC investment strategy might capitalize on equity and option mispricing by exploiting perceived inefficiencies in the market. Any inefficiency that existed would have more likely been realized at the stock level. Converting to an index-based SSC strategy from a stock based SSC strategy would limit BLMIS’s ability to earn excess returns, making this a counter-intuitive modification to the purported strategy.

159. Furthermore, the impact of moving from a stock-based strategy to an index-based strategy is not limited to inefficiencies. Moving from a stock-based strategy to an index-based strategy would also be detrimental to a strategy based on market timing. Rather than searching for 30 market-timing opportunities, the strategy is now limited to trying to predict the market’s movement as a whole (assuming the strategy was based on “catching

¹⁷⁹ *Straus v. Merkin*, Merkin Dep. 631:4-16, June 21, 2011.

¹⁸⁰ *In re Madoff Charities Investigation*, Merkin Dep. 13:13-16, January 30, 2009.

a return,” as Merkin claimed was the case for the Madoff SSC strategy).¹⁸¹

b) Speculative Options

160. The Madoff SSC strategy purported to use options to hedge an equity position. When a basket of equities is purchased, the purchase of puts and the sale of calls creates a “collar,” limiting both the potential gains and the potential losses of the equity position.¹⁸² As changes are made to the basket of equities, corresponding changes are made to the option collar in order to properly hedge the new equity position. The Madoff SSC strategy did not purport to use options to speculate on the directional movements of the market. However, customer statements for the Merkin BLMIS Accounts reflect that between January 1, 1992 and November 30, 2008 on at least 200 separate occasions, option transactions were used solely to generate a profit and not to hedge any equity transactions. As Figure 8 below illustrates, the Merkin BLMIS Accounts reflected speculative option trades generating over \$22 million and 24% of total dollar returns in a single year.

¹⁸¹ Trustee Exhibit 363 (Handwritten Notes, October 30, 2008) (GCC-P 0393148).

¹⁸² If the market declined, gains from the long put options would offset the losses in the equity basket. Similarly, if the market rose, losses from the short call options would offset the gains in the equity basket.

Figure 8
Speculative Option Trades in the Merkin BLMIS Accounts

Year	Number of Speculative Transactions	Gain/(Loss) from Speculative	% of Total Dollar Return
1992	18	\$ 568,834	8.0%
1993	8	\$ 1,864,496	12.8%
1994	12	\$ 3,598,833	21.5%
1995	18	\$ 679,257	2.9%
1996	22	\$ 6,034,088	24.2%
1997	8	\$ 393,338	1.1%
1998	12	\$ 2,800,986	6.0%
1999	12	\$ 2,618,797	3.9%
2000	4	\$ 1,158,297	2.2%
2001	8	\$ 9,395,232	9.9%
2002	0	\$ -	0.0%
2003	14	\$ 8,688,256	6.9%
2004	20	\$ 22,433,690	17.6%
2005	10	\$ 6,856,536	5.3%
2006	22	\$ 4,692,605	3.0%
2007	0	\$ -	0.0%
2008	12	\$ 22,465,408	12.3%
Totals (1992-2008)	200	\$ 94,248,651	6.9%

161. This use of options to generate returns represents an example of style-drift. The profits in the Merkin BLMIS Accounts are not being driven by any part of the Madoff SSC strategy—they are being driven by speculative options.
162. For example, the statements for the Ariel account (1FR070) indicate that on August 29, 2001, BLMIS purported to buy 1,832 OEX put options with a strike price of 570 and a September expiration date, at a price of \$5.70. These same options were purportedly sold two days later, on August 31, 2001, for a price of \$11.00, generating a net gain of \$967,296.
163. These types of option transactions were not used to hedge any equity transactions. Instead, these option transactions were used independently of any equity positions for the sole purpose of generating a profit, and were therefore a deviation from the Madoff SSC

strategy. Over this time period speculative options represented 6.9% of the returns in Merkin's accounts. These speculative option trades were suspicious, inconsistent with the Madoff SSC strategy and should have prompted additional quantitative due diligence on the purported execution of the strategy. The additional due diligence would have been to conduct performance attribution, reverse engineering and alpha analysis. As discussed in Sections VI.D.4, VI.B.2 and VI.B.1, due diligence in these areas would have revealed significant red flags where the only reasonable explanation was fraud.

5. Service Providers

a) Broker-Dealer, Custodian and Administrator

164. Due diligence would also have revealed that BLMIS operated as its own broker-dealer, custodian and administrator – outside of industry norms. While some investment management firms may operate as their own service provider in some areas, rarely do they operate as their own provider in all of these areas.
165. The fact that BLMIS purportedly used its affiliated broker-dealer was a red flag because it is well understood in the industry that this very structure presents an opportunity for fraud to be committed. Most funds do not serve as their own prime broker. Despite the Proprietary Trading Business operating as a broker-dealer, the absence of a third-party prime broker raises a concern because the lack of third-party controls creates an opportunity for fraud.¹⁸³
166. The custody of funds is also an important component of the investment decision. The firm that has the legal responsibility for holding assets owned by an investor is called the “custodian” of those assets. When an individual manages his own funds (i.e., determining when and where to invest), and uses a broker-dealer for purposes of executing transactions, that broker-dealer acts as the custodian. However, if an

¹⁸³ *N.Y.U. v. Ariel Fund Ltd. et al.*, Teicher Dep. 44:14-45:15, February 9, 2009; Ehrenkranz Dep. 48:4-17, March 20, 2014; Surh Dep. 43:25-46:3, September 18, 2013.

individual or institution entrusts funds to another entity (e.g., an investment advisor) to manage, it is common industry practice for an independent third-party custodian to hold the actual funds. Even though the investment advisor is deciding how best to invest the client funds, the funds and/or securities are held by a different entity (i.e., the custodian).¹⁸⁴

167. The benefit of using a third-party custodian in these instances is clear – it acts as a check on the investment advisor. The involvement of multiple parties in the management of assets helps reduce the potential misappropriation of those assets by any of those parties. It is extremely rare for investment advisors to also maintain custody of their customers’ assets for this reason. If there is a third-party custodian, client assets are safe even if the investment vehicle becomes insolvent.¹⁸⁵ If the investment advisor represents himself as the custodian, it is rife with the possibility of fraud, in that the advisor could theoretically misreport or misappropriate the assets, which is in fact what occurred with BLMIS. Having third parties buy and sell securities (i.e., through the use of prime brokers) and hold securities (i.e., through the use of custodians) helps deter potential fraud. This organizational model using separate entities is industry practice for the investment management industry and applies to both hedge funds and managed accounts.
168. In addition to custodians, investment vehicles also employ the services of an administrator. Administrators offer services including: fund accounting, shareholder servicing, reviewing regulatory requirements, structuring alternative investment instruments, and stock exchange reporting.¹⁸⁶ Similar to prime broker and custodian activities, investment vehicles typically do not act as their own administrator.¹⁸⁷

¹⁸⁴ Securities may be held either in certificate form, or in “street name,” i.e., aggregated with the custodian with beneficial owners accounted for by the custodian.

¹⁸⁵ Mark Berman, *Hedge Funds and Prime Brokers* 42 (London: Risk Books 2009).

¹⁸⁶ Jason A. Scharfman, *Hedge Fund Operational Due Diligence* 16 (Hoboken: John Wiley & Sons, Inc. 2009).

¹⁸⁷ Less than 1% of hedge funds handle the responsibilities of an administrator for their own operations. Calculated using Barclay Global DataFeeder August 2011.

169. Madoff serving as his own broker-dealer, custodian and administrator was a red flag because it was inconsistent with industry customs and practices and the lack of independent verification created an opportunity for fraud.

b) Lack of a Well-Known and Established Auditor

170. The purpose of the auditor is to review the financial statements of the audited firm and determine that the financial statements are reasonably free of material misstatements.¹⁸⁸ For example, Merkin employs BDO Seidman as the auditor for Gabriel and Ascot, while BDO Tortuga is the auditor for Ariel and Former Ascot Fund.¹⁸⁹
171. Due diligence consistent with industry customs and practices, such as running a Dun & Bradstreet report, a site visit, or phone call, would have immediately shown that Friebling & Horowitz was a firm with one active accountant, that simply did not have the capability to provide adequate audit support to a firm the purported size of BLMIS. Madoff was a global investment advisor and BLMIS's purported size would have made it one of, if not the largest, hedge fund in the world during the 2000s.
172. The fact that BLMIS, with public estimates of AUM as much as \$7 billion by 2001, did not have a well-known, well-established, and well-equipped auditor was a red flag because it is inconsistent with industry customs and practices and created an opportunity for fraud.¹⁹⁰ It is easier for an investment advisor to produce fictitious numbers or fraudulent financial statements if the auditor is not equipped or does not have the requisite expertise to identify fraudulent activity. Pursuant to industry customs and

¹⁸⁸ Occupational Outlook Handbook (2014-2015 ed.) (March 5, 2015), <http://www.bls.gov/ooh/business-and-financial/print/accountants-and-auditors.htm>.

¹⁸⁹ Gabriel Capital Group Marketing Presentation, (October 2008) (BS00041099). PwC, Ernst & Young, KPMG, and Deloitte & Touche are commonly referred to as the "Big 4" accounting firms. These firms audit more than 50% of U.S. hedge funds, including providing auditing services to 18 out of 20 of the largest hedge funds. Barclays' Fund Graveyard Database as of August 2011.

¹⁹⁰ Joshua Nash, Merkin's friend and co-member of the UJA/Federation of New York investment committee, called the lack of a major accounting firm at BLMIS a "red flag," and as a result "wouldn't be comfortable" investing with Madoff as a fiduciary to any endowment. Nash Dep. 51:1-52:3, 54:13-25, October 18, 2012.

practices, auditors are expected to act as a significant check on the financial transactions of their clients—and without a capable auditor behind BLMIS there was an opportunity for fraud to be committed.¹⁹¹

6. Investor Communications

a) All Paper Statements

173. A red flag associated with BLMIS's operations relates to the use of paper statements, and the lack of any electronic access by the Defendant Funds. Despite typical investment management industry operating procedures of allowing customers to obtain account statements, balances, and other details through the internet, the Defendant Funds never had real-time access to any account data or electronic statements.¹⁹²
174. For decades, the common medium for communication between financial institutions and their customers was written notices (i.e., delivered via hard copy). Exactly when financial institutions on the whole made the switch to electronic correspondence is difficult to pinpoint. But records show that discount brokerages such as E-Trade, Fidelity, and Schwab had electronic platforms designed to give customers the ability to manage their accounts online and receive electronic monthly statements as early as 1997.¹⁹³ Articles from the mid-1990s also point to electronic communication as

¹⁹¹ In 2006, when BLMIS registered as an investment advisor it reported \$11.7 billion AUM and still did not use a well-known and established auditor. Nor did BLMIS change auditors in 2007 or 2008 when AUM reported to rise to \$13 billion and \$17 billion respectively. SEC Form ADV, Bernard L. Madoff Investment Securities, August 25, 2006 (PUBLIC0003729 at 736); SEC Form ADV, Bernard L. Madoff Investment Securities, January 24, 2007 (PUBLIC0003763 at 771); SEC Form ADV, Bernard L. Madoff Investment Securities, January 7, 2008 (PUBLIC0003834 at 840).

¹⁹² Achillarre Dep. 90:12-91:14, August 9, 2011. *Wiederhorn v. Merkin*, Hearing Transcript 159:13-18, December 3, 2009.

¹⁹³ *E-Trade* (April 1997), Internet Archive: WayBackMachine (last visited March 5, 2015), <https://web.archive.org/web/19970409110234/http://www.etrade.com/>; *Fidelity* (April 1997), Internet Archive: WayBackMachine (last visited March 5, 2015), <https://web.archive.org/web/19970415075112/http://www.fidelity.com/>; *Schwab* (April 1997), Internet Archive: WayBackMachine (last visited March 5, 2015), https://web.archive.org/web/19970412072157fw_/http://www.schwab.com/.

“standard,” particular for custodians serving the investment management industry.¹⁹⁴

175. Money managers such as T. Rowe Price had similar electronic platforms to monitor account activity available as early as January 1998.¹⁹⁵ By June of 2000, the practice of granting customers electronic access to their accounts would appear to be mainstreamed given the enacted legislation at the time.¹⁹⁶ Other managers that Merkin was invested with such as Cerberus and David Sherman were providing electronic access,¹⁹⁷ yet long after industry-comparable companies had begun allowing electronic access the Defendant Funds still did not have electronic access to any of their BLMIS account data up through December 11, 2008.¹⁹⁸ Unlike consumers, who began performing increasing numbers of their own, individual banking transactions throughout the 2000s through online access to checking and savings accounts, BLMIS’s operations continued to be paper-based, without any electronic access to statements.

¹⁹⁴ Andrew Burchill, *Make way for middlemen*, Institutional Investor, June 1993.

¹⁹⁵ *T. Rowe Price* (January 1998), Internet Archive: WayBackMachine (last visited March 11, 2015), <https://web.archive.org/web/19980122084527/http://www.troweprice.com/>.

¹⁹⁶ On June 30, 2000, the Electronic Signatures in Global and National Commerce Act (referred to herein as the “E-Sign Act”) was signed into law by Congress. 15 U.S.C. § 7001. The implementation of this law “[allowed for] the use of electronic records to satisfy any statute, regulation, or rule of law requiring that such information be provided in writing, if the consumer has affirmatively consented to such use and has not withdrawn such consent.” Another portion of the E-Sign Act focuses on required record retention. Specifically it requires “[a] financial institution to maintain electronic records accurately reflecting the information contained in applicable contracts, notices or disclosures and that they remain accessible to all persons who are legally entitled to access for the period required by law in a form that is capable of being accurately reproduced for later reference.” Given that the law requires maintenance of electronic records, it would be reasonable for customers to be granted access to their own records electronically. Federal Deposit Insurance Corporation, “The Electronic Signatures in Global and National Commerce Act (E-Sign Act),” FDIC Compliance Manual, Sec. X-3.1-X-3.4 (June 2009).

Electronic account information had become so prevalent that the U.S. Office of the Comptroller issued an advisory letter in November 2004 to the chief executive officers of all national banks stressing the importance of having investor records retained within an online platform. The advisory letter states explicitly that “[f]ailure to provide such electronic disclosures in a proper manner can expose the bank to significant compliance, transaction, and reputation risk.” Office of the Comptroller of the Currency, AL 2004-11, *Electronic Consumer Disclosures and Notices* (October 1, 2004), <http://www.occ.gov/static/news-issuances/memos-advisory-letters/2004/advisory-letter-2004-11.pdf>.

¹⁹⁷ Asking Dep. 21:25-22:12, August 10, 2011.

¹⁹⁸ Achillarre Dep. 90:12-91:14, August 9, 2011.

176. In addition, for a firm that claimed to use “cutting-edge technology” in its operations and with such a small employee base to handle the enormous logistical task of mailing documentation to customers, it was suspicious that paper documents continued to be Madoff’s standard operating procedure for BLMIS instead of electronic documents. BLMIS’s use of paper statements was inconsistent with industry customs and practices in the years after 2000.
177. To better understand the extent to which broker-dealers (recognizing Madoff was far more than a mere executing broker) offered electronic access in the mid-2000s I examined the top 25 independent broker-dealers in 2005 by revenue. I then used a historical internet archive to search the websites for these broker-dealers circa 2005.¹⁹⁹ Of the 20 broker-dealers that had websites available in the time period, 19 indicated that they offered electronic access to account information.²⁰⁰ That is, 95% of the top independent broker-dealers in the 2005 time period offered electronic access.
178. It was even more unusual and atypical in so much as that Madoff was touted in the media as a global leader in the use of technology, in publications including *Securities Week*, *The New York Times*, and *Wall Street & Technology*.²⁰¹ Madoff’s marketing materials highlighted his firm’s ability in this area, specifically stating:

¹⁹⁹ Internet Archives, WayBackMachine (last visited March 11, 2015), <http://www.archive.org/web/web.php>.

²⁰⁰ No information was available in the historical internet archive for the websites for the other 5 (25 - 20 = 5). However, each of these broker-dealers appears to offer electronic access today based on a review of their current websites.

²⁰¹ *NYSE Price Material Raises Eyebrows at Madoff*, *Securities Week* (McGraw Hill, Inc. September 3, 1990); Anthony Guerra, *Family Influence*, *Wall Street & Technology* (July 07, 2000); *Madoff Seeks Edge with Pre-Opening Price Improvement Plan*, *Securities Week* (May 31, 1999); Susan Rodetis, *Third Market Man*, *Equities* (October 1993); Press Release, NASDAQ, SEC Grants Permanent Approval of NASDAQ’s Primex Auction System (New York: Mar. 3, 2003).

Moreover, Madoff Securities' computerized transaction processing means that the firm can customize client reports and **deliver them electronically in whatever format best meets the needs of clients.**²⁰²

179. Madoff himself highlighted his technological superiority to Merkin, stating that “we spend more on technology than any hedge fund I know of doe[s] and more than 99% of the brokerage industry does.”²⁰³ Therefore, the lack of electronic statements available to Merkin was a red flag.
180. From its inception through 2008, BLMIS sent all monthly statements and trading documentation to customers, including Defendant Funds, in hard copy form, with time delays. Time delays provide an opportunity to adjust prices or backdate transaction information.
181. Compounding the issue with time delays, BLMIS provided “corrective” trade confirmations to the Defendant Funds that reflected that a previous trade (e.g., a week prior) was purportedly executed at a different price and that the earlier trade confirmation would be cancelled and replaced by a new one.²⁰⁴
182. BLMIS's use of paper statements was a red flag because it was inconsistent with industry customs and practices in the years after 2000 and created an opportunity for fraud.

b) Non-Standard Trade Confirmations and Customer Statements

183. I reviewed two types of account statements that were regularly delivered to the Defendant Funds during their investment relationship with BLMIS: (i) trade confirmations; and (ii)

²⁰² Bernard L. Madoff Investment Securities, Marketing Presentation (undated) (BS00017223 at 231).

²⁰³ Trustee Ex. 363 (Telephone Conversation Transcript between E. Merkin and B. Madoff, January 14, 2002) (GCC-P 0393364-373 at 67).

²⁰⁴ *N.Y.U. v. Ariel Fund Ltd. et al.*, Teicher Dep. 26:12-17, February 9, 2009; Gordon Dep. 43:16-46:7, August 16, 2011.

customer statements. None of these documents was standard.²⁰⁵ To the contrary—each document reflected significant (and plain) deviations from typical statements of similar purpose.

184. Features of typical brokerage-related statements include, but are not limited to:²⁰⁶

- Account information – Name, time period, account number, broker contact information;
- Statement Account/Summary – Realized and unrealized gains/losses, total value of securities (both beginning and ending balance);
- Portfolio Detail – Information on individual asset holdings, including estimated income and yield, bond ratings and stock ticker symbols;
- Income Summary – Dividends and income earned by investments during the period (and/or year-to-date);
- Daily Activity – Detailed account activity at a transaction level; and
- Disclosures – Administrative and legal explanations regarding the statement or account.

185. As described in detail below, Madoff’s statements deviated from this sort of typical information, and were non-standard in multiple ways.

(1) Trade Confirmations

186. The first document that the Defendant Funds would have received in connection with a transaction in their accounts would have been a trade confirmation, providing details about a purported trade such as the date of the trade, the security traded, and the quantity traded. However, the trade confirmations received by the Defendant Funds were non-standard, atypical, and excluded the type of information that Fund Managers would have expected to see on trade confirmations.


187. First, the trade confirmations that the Defendant Funds received were backwards. That

²⁰⁵ While Madoff also provided Portfolio Management Reports (“PMR”) to customers, it is not clear whether these were regularly delivered to Merkin. I only located one PMR produced by Merkin in this matter.

²⁰⁶ “Understanding Your Brokerage Accounts” at 2, SIFMA, SIPC, NASAA (March 7, 2007).

is, when BLMIS purportedly bought a security for one of the Merkin BLMIS Accounts, the Defendant Funds would receive a trade confirmation reflecting a “sale” of a security. Conversely, when BLMIS purportedly sold a security from one of the Merkin BLMIS Accounts, the Defendant Funds would receive a trade confirmation reflecting a “buy” of a security.²⁰⁷ For example, in February 2002, the customer statement for Ascot (account number 1-A0058-3-0) reflected that BLMIS sold 37,474 shares of Medtronic Inc. which settled on February 19, 2002 (*see* Figure 9 — 37,474 shares are listed in the “SOLD” column).²⁰⁸

Figure 9
Customer Statement Reflecting SELL



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ASCOT PARTNERS LP

450 PARK AVENUE #3201
NEW YORK NY 10022

PERIOD ENDING: **2/28/02** PAGE: **2**

YOUR ACCOUNT NUMBER: **1-A0058-3-0** YOUR TAX PAYER IDENTIFICATION NUMBER: **13-3693341**

DATE	BOUGHT RECEIVED ON LONG	SOLD DELIVERED ON SHORT	TRN	DESCRIPTION	PRICE OR SYMBOL	AMOUNT DEBITED TO YOUR ACCOUNT	AMOUNT CREDITED TO YOUR ACCOUNT
2/19		59,607	62131	BRISTOL MYERS SQUIBB COMPANY	46.260		2,757,419.82
2/19		30,486	62382	ANHEUSER BUSCH COS INC	48.310		1,472,778.66
2/19		159,042	62633	CITI GROUP INC	45.680		7,265,038.56
2/19		236,748	62884	CISCO SYSTEMS INC	17.600		4,166,764.80
2/19		32,120	63135	DU PONT E I DE NEMOURS & CO	44.100		1,416,492.00
2/19		64,241	63384	THE WALT DISNEY CO	23.840		1,531,505.44
2/19		310,439	63633	GENERAL ELECTRIC CO	38.080		11,821,517.12
2/19		73,636	63884	HOME DEPOT INC	51.470		3,790,044.92
2/19		53,534	64135	INTERNATIONAL BUSINESS MACHS	108.190		5,791,843.66
2/19		214,676	64386	INTEL CORP	33.510		7,193,792.76
2/19		95,770	64634	JOHNSON & JOHNSON	58.470		5,599,671.90
2/19		62,156	64885	JP MORGAN CHASE & CO	31.530		1,959,778.68
2/19		76,648	65134	COCA COLA CO	46.898		3,565,600.44
2/19		37,474	65387	MEDTRONIC INC	48.100		1,802,499.40
2/19		29,909	65590	HENRY SUGA INC & NPO CO	118.220		3,535,372.26
2/19		67,698	65886	PHILIP MORRIS COMPANIES INC	50.690		3,431,611.62


188. However, the trade confirmation for this transaction reported a BUY of the security (*see* Figure 10 — BOT is short for “BOUGHT”).²⁰⁹

²⁰⁷ See, e.g., Trade Confirmation for Ascot Partners LP (account number 1-A0058-3), February 19, 2002 (GCC-P 0288915 at 921). This is just one example of the backwards trade confirmations that the Defendant Funds received. Based on my review of the documents produced by Merkin, it appears that every single trade confirmation throughout the entire life of the Defendant Funds’ investments with BLMIS was backwards.

²⁰⁸ Statement for Ascot Partners LP (account number 1-A0058-3-0), February 28, 2002 (GCC-P 0310216 at 217).

²⁰⁹ Trade Confirmation for Ascot Partners LP (account number 1-A0058-3) (settlement date of February 19, 2002) (GCC-P 0288915 at 921).

Figure 10
Trade Confirmation Reflecting BUY

		BERNARD L. MADOFF INVESTMENT SECURITIES LLC New York <input type="checkbox"/> London		MEMBER: NASD CSE SIPC NSCC DTC		885 Third Avenue New York, NY 10022 212 230-2424 800 334-1343 Fax 212 838-4061					
ORIGINATOR NO.	DELIVERED VIA	ACCOUNT NUMBER	DIR	TRANS. NO.	TR	CAP	SETT	TRADE DATE	SETTLEMENT DATE		
0646		1-A0058-3	R	65387	5	2		2/13/02	2/19/02	17	
IDENTIFICATION NO.	CONTRA PARTY			C.H. NUMBER		SPECIAL DELIVERY INSTRUCTIONS					
	ASCOT PARTNERS LP 450 PARK AVENUE #3201 NEW YORK NY 10022										
WE	QUANTITY	CUSIP NUMBER	SECURITY DESCRIPTION				NET AMOUNT				
BUY	37,474	585055106	MEDTRONIC INC				1802499.40				
PRICE		PRINCIPAL	COMMISSION	STATE TAX	INTEREST	SEC. FEE	MISC.				
48.100		1802499.40									

CONFIRMATION

189. In my nearly 30 years of experience working with trade confirmations and customer statements for myself as well as for my clients, I have never seen trade confirmations provided to clients in this manner where the trade confirmation reflects exactly the opposite of what the customer statement reflects, or the trade that was purportedly executed. Madoff's trade confirmations were non-standard in this regard.
190. Second, the equity trade confirmations that BLMIS provided to the Defendant Funds leave out the most basic information that is included on every trade confirmation I have ever seen: the commission for the executing broker. Commissions for equity trades are required by the Securities and Exchange Commission ("SEC") to be reported on trade confirmations.²¹⁰ Although Madoff claimed that he was purportedly charging \$0.04 per

²¹⁰ 17 CFR § 240.10b-10. Section (a)(2)(i)(B) states that written notification must disclose: "The amount of any remuneration received or to be received by the broker from such customer in connection with the transaction unless remuneration paid by such customer is determined pursuant to written agreement with such customer, otherwise than on a transaction basis." This applies when the broker or dealer acts as an agent. While the trade confirmation in the figure above appears to identify Madoff as a principal (*see* "Capacity (CAP) Code"), the Trading Authorization Directive signed by Merkin clearly indicates Madoff is acting as Merkin's agent in any transaction of stock or options. *See, e.g.,* Trustee Ex. 360 (Trading Authorization Directive, October 22, 2002)

equity trade,²¹¹ the trade confirmations for the Merkin BLMIS Accounts prior to September 2006 never reported commissions payable to BLMIS.²¹² Figure 11 illustrates the lack of commissions on a trade confirmation for Ascot's BLMIS account—the red box highlights the area where the commission should be reported.²¹³

Figure 11
Equity Trade Confirmation Without Any Commission Fee

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New York ☐ London

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NASD CSE SIPC NSCC DTC

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800 334-1343
Fax 212 838-4061

ORIGINATOR NO.	DELIVERED VIA	ACCOUNT NUMBER	DIR	TRANS. NO.	CODES			TRADE DATE	SETTLEMENT DATE
0646		1-A0058-3	D	47984	TR	CAP	SETT	7/18/06	7/21/06

IDENTIFICATION NO. CONTRA PARTY C.H. NUMBER SPECIAL DELIVERY INSTRUCTIONS

ASCOT PARTNERS LP
450 PARK AVENUE #3201
NEW YORK NY 10022

WE	QUANTITY	CUSIP NUMBER	SECURITY DESCRIPTION	NET AMOUNT
SLD	325,776	00206R102	AT&T INC	8704734.72

PRICE	PRINCIPAL	COMMISSION	STATE TAX	INTEREST	FEE	MISC.
26.720	8704734.72					

191. The fact that trade confirmations for the Merkin BLMIS Accounts were backwards and

(GCC-SEC 0027370-381). Merkin also understood Madoff to be acting as an agent. *Wiederhorn v. Merkin*, Hearing Transcript 165:5-9, December 3, 2009.

²¹¹ Autera Dep. 108:7-15, October 19, 2011; UBPAMERKIN00001711 at 711; GCC-P0515226. These commissions are reflected on customer statements and trade confirmations after BLMIS registered as an RIA in September 2006. Prior to September 2006, the commissions were reflected directly in the reported share prices. *See, e.g.*, Trade Confirmation for Ascot Partners LP (account number 1-A0058-3) (settlement date of October 27, 2006) (GCC-P0515226 at 5225).

²¹² Trade Confirmation for Ascot Partners LP (account number 1-A0058-3) (settlement date of February 19, 2002) (GCC-P 0288915 at 921). This is just one example of the thousands of trade confirmations for the Merkin BLMIS Accounts that did not report commissions.

²¹³ Trade Confirmation for Ascot Partners LP (account number 1-A0058-3) (settlement date of July 21, 2006) (BS00009134 at 134). The handwritten annotations are included in the original document.

omitted standard and required information means the trade confirmations were non-standard and were unlike any other trade confirmations I have seen in the industry. Madoff's non-standard trade confirmations were a red flag because they are inconsistent with industry customs and practices.

(2) Customer Statements


192. The Defendant Funds received monthly customer statements from BLMIS. These statements also contained non-standard characteristics.
193. First, customer statements for the Merkin BLMIS Accounts reported securities not available for purchase. On hundreds of statements, the Merkin BLMIS Accounts reflected the purported purchase or sale of the Fidelity Spartan U.S. Money Market Fund (Ticker: FDLXX).²¹⁴ While this fund officially changed its name to Fidelity U.S. Money Market Fund, effective August 15, 2005,²¹⁵ the customer statements for the Merkin BLMIS Accounts never reflected the name change, and continued to report the historical, incorrect name.
194. Second, the customer statements for the Merkin BLMIS Accounts reported a "Balance Forward" that was entirely inconsistent with industry customs and practices. Rather than listing the total beginning balance in the account (i.e., cash balance plus the market value of securities), the customer statements for the Merkin BLMIS Accounts reported only the beginning cash position. In the example below, the ending balance in the equity account as of November 30, 2003 was \$67,453,295.69 in cash and \$1,283,271,378.19 in securities. However, the Balance Forward in the December 31, 2003 customer statement was only \$67,453,295.69, reflecting only the cash balance (*see* Figure 12 and Figure

²¹⁴ *See e.g.*, Statement for Ariel Fund (account number 1-FR070-3), December 31, 2004 (BS00005772 at 772); Statement Ariel Fund (account number 1-FR070-3), December 31, 2005 (BS00005587 at 591).

²¹⁵ Supplement to the Spartan U.S. Treasury Money Market Fund, Spartan U.S. Government Money Market Fund, and Spartan Money Market Fund June 29, 2005 Prospectus.

13).²¹⁶

Figure 12
Customer Statement Reflecting Ending Balance of Cash and Securities



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PERIOD ENDING: **10/31/03** PAGE: **9**

YOUR ACCOUNT NUMBER: **1-A0058-3-0** YOUR TAX PAYER IDENTIFICATION NUMBER: **13-3693341**

DATE	BOUGHT RECEIVED OR LONG	SOLD DELIVERED OR SHORT	TRN	DESCRIPTION	PRICE OR SYMBOL	AMOUNT DEBITED TO YOUR ACCOUNT	AMOUNT CREDITED TO YOUR ACCOUNT
10/16		1,245,147		AOL TIME WARNER INC	DELV		19,097,663.52
10/16	1,245,147			AOL TIME WARNER/TIME WARNER	RECD	19,097,663.52	
10/17	275,000		44734	TIME WARNER INC			
				AOL TIME WARNER/TIME WARNER			
				U S TREASURY BILL	99-719	274,227.25	
				DUE 2/5/2004			
10/17	13,526		44890	FIDELITY SPARTAN	1	13,526.00	
				U S TREASURY MONEY MARKET			
10/31				MORGAN STANLEY	DIV		44,248.32
				DIV 10/10/03 10/31/03			
10/31	600,000		51795	U S TREASURY BILL	99-747	598,482.00	
				DUE 2/5/2004			
10/31	39,441		51847	FIDELITY SPARTAN	1	39,441.00	
				U S TREASURY MONEY MARKET			
				NEW BALANCE			67,453,295.69
	568,767			SECURITY POSITIONS	MKT PRICE		
	346,206			ALTRIA GROUP INC	46.500		
	717,141			AMERICAN EXPRESS COMPANY	46.930		
	362,601			AMERICAN INTL GROUP INC	60.830		
	222,561			AMGEN INC	61.750		
				ANHEUSER BUSCH COS INC	49.260		
				CONTINUED ON PAGE 10			

Cash

²¹⁶ Statement for Ascot Partners, L.P. (account number 1-A0058-3), November 30, 2003 (GCC-P 0532545 at 2591); Statement for Ascot Partners, L.P. (account number 1- A0058-3), December 31, 2003 (GCC-P 0532545 at 546). The handwritten annotations are included in the original document.

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PERIOD ENDING 10/31/03
PAGE 11

YOUR ACCOUNT NUMBER 1-A0058-3-0
YOUR TAX PAYER IDENTIFICATION NUMBER 13-3693341

DATE	BOUGHT RECEIVED OR LONG	SOLD DELIVERED OR SHORT	TRN	DESCRIPTION	PRICE OR SYMBOL	AMOUNT DEBITED TO YOUR ACCOUNT	AMOUNT CREDITED TO YOUR ACCOUNT
	1,475,679			ORACLE CORPORATION	11.960		
	469,851			PEPSICO INC	47.820		
	2,143,089			PFIZER INC	31.600		
	353,904			PROCTER & GAMBLE CO	98.290		
	914,973			SBC COMMUNICATIONS INC	23.980		
	91,612			FIDELITY SPARTAN	1		
	485,883			U S TREASURY MONEY MARKET			
	222,561			TEXAS INSTRUMENTS INC	28.920		
	1,245,147			3M COMPANY	78.870		
	544,038			TIME WARNER INC	15.290		
	527,007			TYCO INTERNATIONAL LTD	20.880		
	875,000			U S BANCORP	27.220		
				U S TREASURY BILL DUE 2/5/2004	99.747		
	123,645			2/05/2004 UNITED TECHNOLOGIES CORP	84.690		
	766,599			VERIZON COMMUNICATIONS	33.600		
	478,548			VIACOM INC	39.870		
	1,211,721			CLASS B NON VOTING SHS			
	469,851			WAL-MART STORES INC	58.950		
				WELLS FARGO & CO NEW	56.320		
				MARKET VALUE OF SECURITIES LONG SHORT			
				1,283,271,378.19			

← Securities

Figure 13²¹⁷
Customer Statement Reflecting Beginning Balance of Cash

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ASCOT PARTNERS LP

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NEW YORK NY 10022

PERIOD ENDING 11/30/03
PAGE 1

YOUR ACCOUNT NUMBER 1-A0058-3-0
YOUR TAX PAYER IDENTIFICATION NUMBER 13-3693341

Cash

DATE	BOUGHT RECEIVED OR LONG	SOLD DELIVERED OR SHORT	TRN	DESCRIPTION	PRICE OR SYMBOL	AMOUNT DEBITED	AMOUNT CREDITED
				BALANCE FORWARD			67,453,295.69
11/03				SBC COMMUNICATIONS INC DIV 10/10/03 11/03/03	DIV SBC		167,574.48
11/03				SBC COMMUNICATIONS INC DIV 10/10/03 11/03/03	DIV SBC		59,318.40
11/03				VERIZON COMMUNICATIONS DIV 10/10/03 11/03/03	DIV VZ		191,341.92
11/07				MICROSOFT CORP DIV 10/17/03 11/07/03	DIV MSFT		478,855.20
11/14				PROCTER & GAMBLE CO DIV 10/24/03 11/14/03	DIV PG		161,026.32
11/17				TEXAS INSTRUMENTS INC DIV 10/31/03 11/17/03	DIV TXI		10,325.01
11/18	4,700,000		62671	U S TREASURY BILL DUE 2/5/2004	99.796	4,690,412.00	

195. In the example above, Ascot's BLMIS customer statement as of November 30, 2003

²¹⁷ Statement for Ascot Partners, L.P. (account number 1-A0058-3), November 30, 2003 (GCC-P 0532545 at 2591)

never reports the beginning balance of securities.

196. This is non-standard, atypical, and inconsistent with industry customs and practices. Industry guidance is that customers should be able to find their total beginning and ending balances on all statements, and furthermore be able to compare the total beginning balance of the current statement with the total ending balance of the previous statement.²¹⁸ This exercise would not be possible with the customer statements for the Merkin BLMIS Accounts. While the monthly customer statements for the Merkin BLMIS Accounts reflected both the ending cash position and the ending securities position for each month, the customer statements did not show an opening securities position each month, only the opening cash position. Madoff's non-standard customer statements were a red flag because they were inconsistent with industry customs and practices.

B. Portfolio

197. As discussed above in Opinion No. 1, it is important to perform Portfolio-related due diligence to determine whether the approach described by the investment advisor actually reflects the reality of the portfolio constructed. A Fund Manager wants to be sure they are compensating an advisor for performance that adheres to the stated investment objective and strategy. Portfolio-related due diligence activities that I performed on the Merkin BLMIS Accounts include alpha analysis, reverse engineering, and volatility analysis.
198. These analyses reflect industry customs and practices for due diligence, and are consistent with the analyses I typically perform for clients as to both their consideration of new investments and ongoing/monitoring of existing investments.

²¹⁸ The Securities Industry and Financial Markets Association ("SIFMA") provides a checklist regarding brokerage account statements, indicating that investors should "find [their] beginning and ending balances" and also "compare the beginning balance of [their] current statement with the ending balance of the previous statement." "Understanding Your Brokerage Accounts" at 3, SIFMA, SIPC, NASAA (March 7, 2007).

1. Alpha Analysis: Basket Return Relative to Benchmark

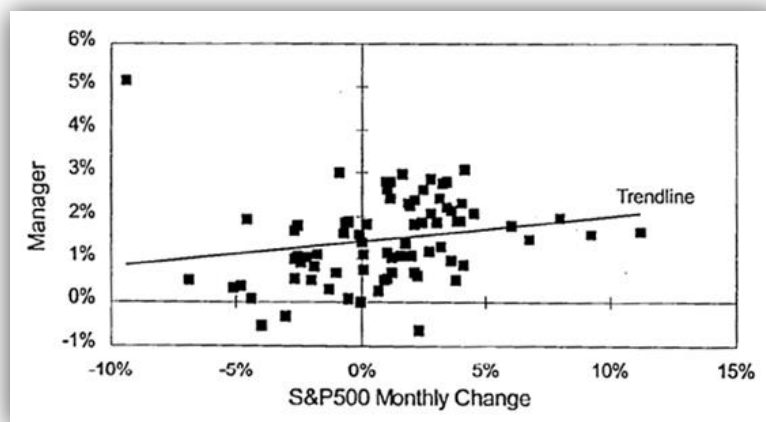
199. As discussed above in Section V.B.2, it is industry custom and practice to measure the alpha of the investment opportunity in order to assess the effectiveness of the investment advisor. Alpha enables a Fund Manager to monitor the performance of an investment advisor relative to benchmarks in order to determine how much of the investment advisor's return is due to general market behavior as opposed to active management. Fund Managers measure the alpha of the fund in order to assess the effectiveness of the investment advisor.²¹⁹ There are two important aspects of alpha: (i) the magnitude of the measurement; and (ii) the consistency of generating alpha at that magnitude. For example, a Fund Manager might calculate an alpha of 2.0% for an investment advisor, meaning an investment advisor generates returns 2.0% above the market. However, the consistency of this value is equally important. While an investment advisor may be able to generate an alpha of 2.0, in my experience it is very difficult to generate any alpha consistently.²²⁰
200. The most common technique employed in the investment management industry to measure alpha and the consistency of alpha is regression analysis. Regression analysis is a statistical technique for modeling the relationship between two or more variables, and an analysis that I have performed hundreds, if not thousands, of times throughout my career in the investment management industry. In employing regression analysis to estimate alpha for an investment, the returns of the investment are regressed against the returns of a benchmark, or other objective measures of return.
201. An analysis included in documents produced to the Trustee by Merkin appears to be consistent with regression analysis performed on a BLMIS account for another BLMIS

²¹⁹ See, e.g., BS00143299 at 3305

²²⁰ Hampshire, Jodie, "How Much Risk Does Return Cost? The Information Ratio Explained," October 2002.

customer.²²¹ In a document titled “Comparing Promeo [sic] Manager Series B and the S&P500”²²² there is an analysis called “Scatterdiagram of Monthly Returns.”²²³ The analysis plots the monthly return of the S&P 500 against Primeo Manager Series B’s monthly return from July 1989 through December 1995. Because Primeo was a BLMIS feeder fund, these returns are representative of an investment with BLMIS during this time period.²²⁴ The scatterdiagram, shown below in Figure 14, “shows that the performance of [BLMIS] is to a large degree independent of the gyrations of the S&P500.”²²⁵

Figure 14
Scatterdiagram of Monthly Returns²²⁶



202. Figure 14 illustrates BLMIS’s ability to generate positive returns (BLMIS’s returns are on the vertical axis) regardless of the corresponding returns in the market (S&P 500

²²¹ Merkin Dep. 284:6-295:16, February 24, 2015; *N.Y.U. v. Ariel Fund Ltd. et al.*, Merkin Dep. 298:5-300:24, February 9, 2009.

²²² While the title of the document says “Promeo,” subsequent references in the document indicate “Primeo.” Merkin Dep.

²²³ Trustee Ex. 363 (Comparing Promeo Manager Series B and the S&P500) (GCC-P 0393213-226).

²²⁴ Merkin Dep. 286:18-24, February 24, 2015. Additionally, the handwritten word “Madoff” appears at the top of the document. Trustee Ex. 363 (Comparing Promeo Manager Series B and the S&P500) (GCC-P 0393213-226).

²²⁵ Trustee Ex. 363 (Comparing Promeo Manager Series B and the S&P500) (GCC-P 0393213-226).

²²⁶ Trustee Ex. 363 (Comparing Promeo Manager Series B and the S&P500) (GCC-P 0393213-226).

returns are on the horizontal axis).

203. The regression analysis depicted in Figure 14 would have generated regression diagnostics that can be used to interpret the analysis. For example, the “R-Squared” of the analysis would indicate how well the data fits the model. The “intercept” would be an indication of alpha, the average return generated by the advisor regardless of the overall market return. Finally, the t-statistic (“t-stat”) would measure the consistency with which the advisor generated alpha.
204. I calculated regressions diagnostics for Figure 14 using a table of returns provided in the same document.²²⁷ The R-Squared for this monthly analysis is 0.04, indicative of the fact that BLMIS’s returns were achieved independent of market conditions. The interpretation of an R-Squared of 0.04 is that 4% of the change in BLMIS’s returns was explained by the change in the S&P 500—implying therefore that the change in the market had little to no impact on BLMIS’s returns. The calculated intercept for the monthly analysis is 0.0141, indicating an alpha of 1.4%, meaning that BLMIS’s returns were, on average, 1.4% per month. The consistency with which BLMIS earned a return of 1.4% is measured by the t-stat. Generally a t-stat of 2.0 or greater indicates significant consistency.²²⁸ However, the t-stat for BLMIS’s returns is 12.28, indicating virtual certainty that regardless of the performance of the S&P 500, BLMIS generated a return of 1.4%.²²⁹ Of note is a very significant outlier in the upper left corner of Figure 14, and it would have been industry custom and practice to investigate this further. If Merkin had performed this analysis on the Merkin BLMIS Accounts contemporaneously, it would have shown similar results.

²²⁷ Trustee Ex. 363 (Comparing Promeo Manager Series B and the S&P500) (GCC-P 0393213-226).

²²⁸ Hampshire, Jodie, “How Much Risk Does Return Cost? The Information Ratio Explained,” October 2002.

²²⁹ The t-stat for a coefficient in a linear regression is the estimate of its value divided by the standard error of the estimate, and is used to create a confidence interval about the estimated coefficient. The larger the t-stat, the more likely the true coefficient differs from 0.0. *Quantitative Methods for Investment Methods* 326-27, Association for Investment Management and Research (Baltimore: United Book Press, Inc., 2001).

205. Because the Madoff SSC strategy from 1991 involved basket trades consisting of purchasing a basket of stocks correlated with the S&P 100 Index, I have conducted a regression analysis of basket returns against the S&P 100 for 1991 through 2008. Had Merkin performed this regression analysis on basket returns (the combination of stock, put and call positions) instead of monthly returns as shown above, the analysis would have revealed that Madoff's basket trades generated an absolute return of 2.7% with implausible consistency. (See **Schedule 8** to **Schedule 11**.)
206. Had Merkin performed this regression analysis on basket returns, it would have shown an R-Squared of 0.29, which is higher than BLMIS's returns as compared to the S&P 500 above, but is still a considerably low number. An R-Squared of 0.29 indicates that changes in the S&P 100 only explained 29% of the change in the returns of the Merkin BLMIS Accounts, despite the fact that the Madoff SSC strategy should be highly correlated to the S&P 100 as described in detail in Section VI.A.1. The calculated intercept is 0.0269, which translates into an alpha of 2.7%, meaning that on average the Merkin BLMIS Accounts were generating a return of 2.7% regardless of the returns generated by the S&P 100. The t-stat for the analysis is 13.4, indicating that Madoff generated a return of 2.7% (i.e., the alpha) with implausible certainty (because the t-stat of 13.4 is so far above 2.0). This level of confidence as implied by such a high t-stat is unattainable in the investment management industry. (See **Schedule 12** for a table of these statistics cumulatively for each year from 1992 through 2008.)
207. The two charts below illustrate the returns used in the regression analysis: (i) the basket returns for the Merkin BLMIS Accounts; and (ii) the returns of the S&P 100 during each basket time period. As the charts indicate, across 51 unique baskets, the Merkin BLMIS Accounts were up 49 times and down only 2 times (Figure 15) while the S&P 100 was up 28 times and down 23 times across the same 51 basket time periods (Figure 16).

Figure 15
Basket Returns for the Merkin BLMIS Accounts by Basket (1991-2008)²³⁰

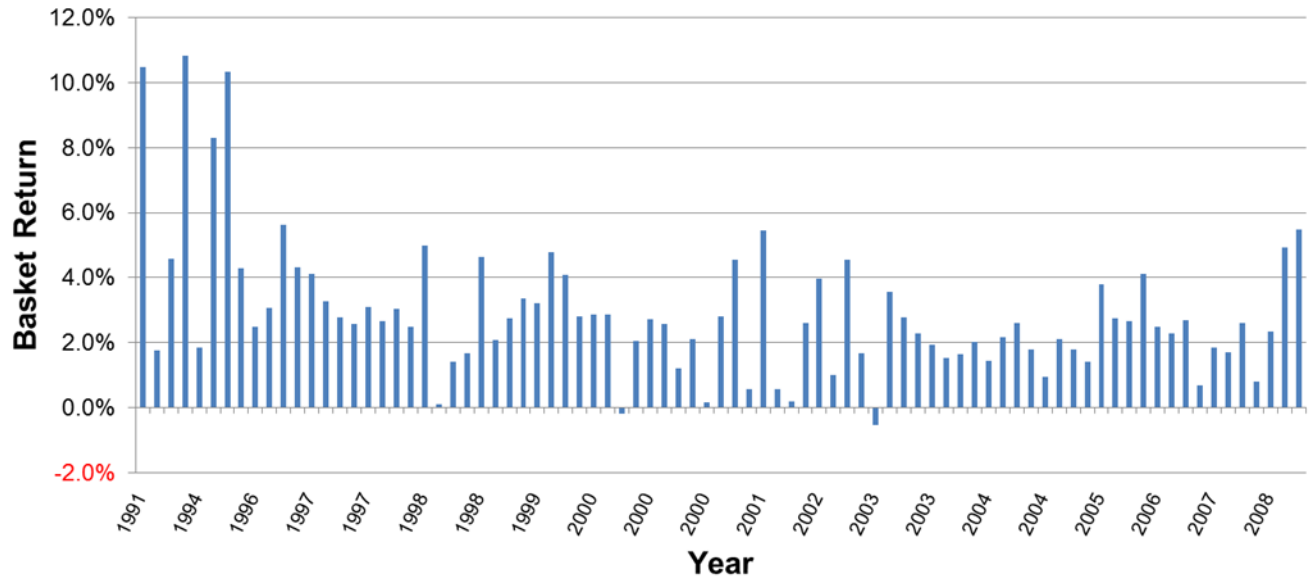
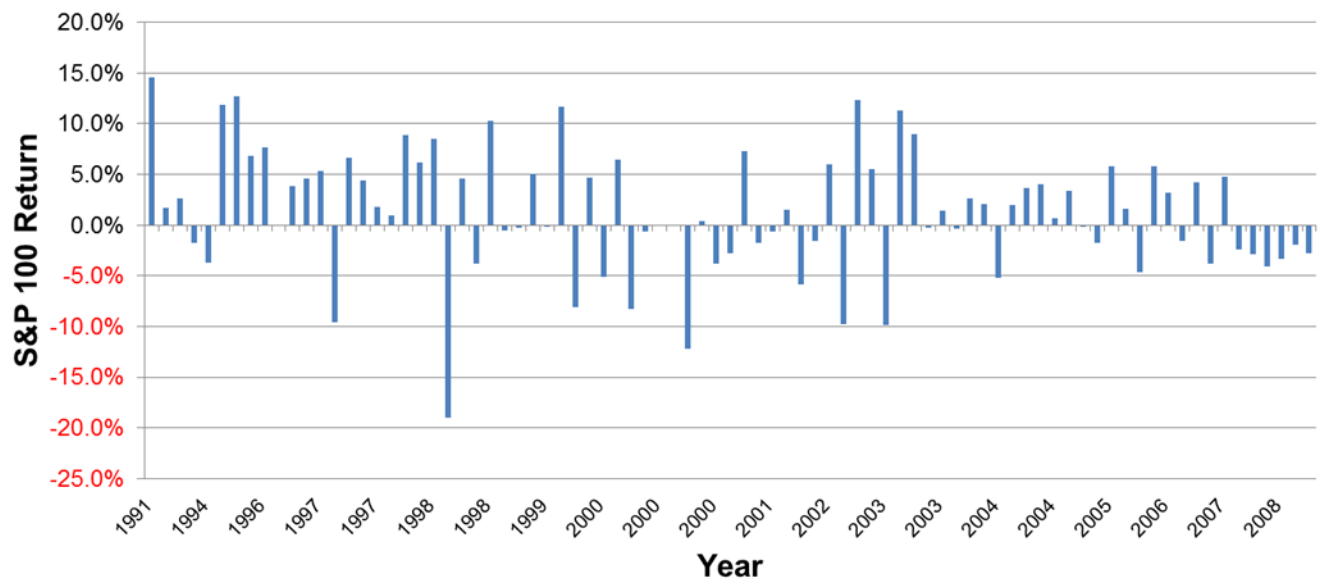


Figure 16
S&P 100 Returns During the Basket Time Periods (1991-2008)²³¹



²³⁰ Sources include StorQM Customer Statements, Settled Cash table Bloomberg market data.

²³¹ Sources include StorQM Customer Statements, Bloomberg market data.

208. Results showing the absolute returns for the Merkin BLMIS Accounts were consistently 2.7% per basket trade regardless of the market's performance were a red flag that Madoff was not executing the strategy he purported to implement, or indeed any strategy. These results were a significant red flag and the only reasonable explanation was fraud.

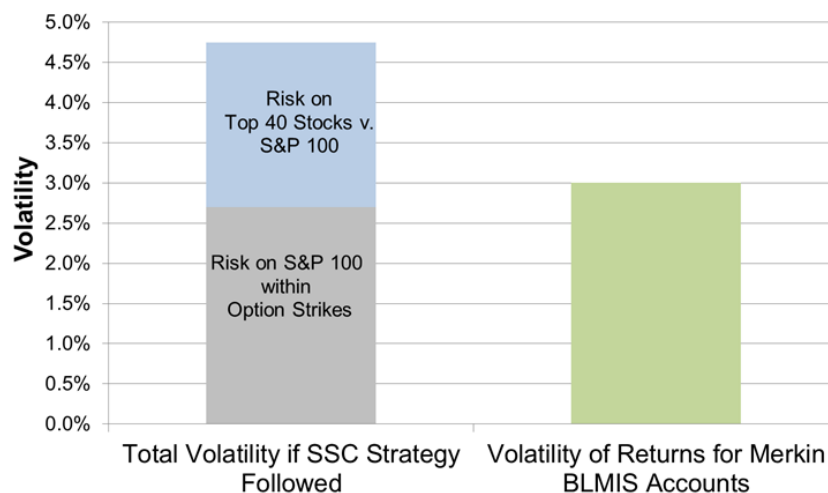
2. Reverse Engineering: Lack of Volatility Is Inconsistent with the Madoff SSC Strategy

209. Another common technique employed in due diligence is referred to as "reverse engineering." The goal of reverse engineering is to replicate, as closely as possible, the investment strategy that is being pursued. This type of due diligence serves as a check on investment returns, as well as an analysis for determining reasonable expectations for performance and for volatility. I performed this analysis for my client when I was performing due diligence on the Madoff SSC strategy.
210. The volatility of the Madoff SSC strategy should, at a minimum, incorporate two prevalent market risks: (i) the risk due to movements in the S&P 100 Index within the option strikes (i.e., the call and put options); and (ii) because BLMIS did not purport to buy all 100 stocks in the index, there is additional risk related to the difference between the performance of the stocks selected by Madoff and the performance of the S&P 100 Index. Together these two data points reflect the Madoff SSC strategy as purportedly implemented by Madoff where at least 35 stocks are purchased (over a few times during the performance year), and call and put options on the S&P 100 Index are sold and bought respectively.²³²

²³² For this analysis, I chose the top 40 stocks in the S&P 100 Index (by market capitalization) in order to create a basket that would have been highly correlated to the index. While the first two basket transactions purportedly executed by Madoff in 1993 included 14 and 15 stocks respectively, the average number of stocks in a basket thereafter until 2008 was 39.5 stocks. In addition, the Trading Authorization Directive from 2002 indicated that

211. I modeled the volatility of return for each strategy separately using the top 40 stocks from December 1991 (the start of BLMIS's use of baskets in the Madoff SSC) through November 2008, the results of which are presented below, along with the volatility of the returns for the Merkin BLMIS Accounts for the same time period.²³³

Figure 17
Summary Performance Statistics for Madoff SSC Strategy Modeling (December 1991 – November 2008)²³⁴



212. As illustrated above in Figure 17, the total volatility of the two primary market risks is significantly higher than the actual volatility produced by returns in the Merkin BLMIS Accounts. The Madoff SSC strategy should have had volatility based on the description of the strategy given to investors including Merkin. However, the actual volatility of the

no less than 35 stocks would be purchased in a basket. Trustee Ex. 360 (Trading Authorization Directive, October 22, 2002) (GCC-SEC 0027370-381)

²³³ I assumed that the strike price of the put is 1% below the initial spot price of the index and that the strike price of the call is 1% above the initial spot price of the index. The procedure is repeated every month for 204 months, from December 1991 to November 2008. I used the historical option price data (closing price) from CBOE and the index price (adjusted for dividends and splits) from Bloomberg. I used the prevailing business day 3-month U.S. Treasury bill rates from Federal Reserve to proxy the risk free rates in pricing the options and computing interest and a 1.5% dividend yield on the S&P 100 when pricing the options. Trustee Ex. 360 (Trading Authorization Directive, October 22, 2002) (GCC-SEC 0027370-381 at 380-81).

²³⁴ Sources include StorQM Customer Statements, Customer Ledgers, Bloomberg market data.

returns for the Merkin BLMIS Accounts was much less than what should have been expected. This stark difference between expected and actual volatility indicates that Madoff was not implementing the Madoff SSC strategy.

213. When I performed due diligence on the Madoff SSC strategy on behalf of my client, I found this same stark difference between expected and actual BLMIS volatility. I consider it now, as I considered it then, to be a significant red flag and the only reasonable explanation was fraud.

3. Daily, Monthly and Annual Volatility are Unrelated

214. While it is not uncommon for daily volatility to be different than monthly or annual volatility, there should always exist a mathematical relationship between daily, monthly and annual volatility of any investment strategy. However, if a Fund Manager identifies potential differences between daily, monthly and/or annual volatility, an analysis can be performed to assess whether the differences are reasonable or unreasonable.²³⁵
215. For example, the ratio between monthly and annual volatility over a five year period, regardless of the investment strategy, should be 3.5. This is calculated as the square root of the ratio of the number of returns over the period:

$$3.5 = \sqrt{[(60 \text{ monthly returns} / 5 \text{ annual returns})]}$$

Therefore, the ratio of monthly volatility to annual volatility over any five year period, for any investment strategy, should be close to 3.5.

216. The same benchmark ratios can be calculated for daily to monthly and daily to annual volatilities. For five years of data, the expected ratio between daily and monthly volatility is 4.6,²³⁶ and the expected ratio between daily and annual volatility is 15.9.²³⁷

²³⁵ *N.Y.U. v. Ariel Fund Ltd. et al.*, Merkin Dep. 75:09-22, 87:20-88:19, February 9, 2009.

²³⁶ $4.6 = \sqrt{[(\text{approx. } 1,266 \text{ daily returns} / 60 \text{ monthly returns})]}$.

²³⁷ $15.9 = \sqrt{[(\text{approx. } 1,266 \text{ daily returns} / 5 \text{ annual returns})]}$.

These ratios are independent of the asset, and apply whether the asset is stocks, bonds, options, or any hybrid thereof. The ratio is an underlying property of financial market data, and the ratios between these volatilities are said to fit on a quadratic curve.

217. I reviewed the daily, monthly and annual volatility of returns between December 2000 and December 2005 for Merkin’s BLMIS account for Ariel to determine whether the volatility of returns for the Merkin BLMIS Accounts were consistent with the benchmark ratios one would expect from any investment strategy.²³⁸
218. For comparison purposes and to demonstrate that the type of investment does not impact the analysis, I also calculated the volatility ratios for Gateway, a fund operating an SSC strategy as discussed above, as well as three diverse index funds. The three index funds I used are: (i) Vanguard Total Bond Market Index Fund (“VBMFX”), a bond fund; (ii) Vanguard 500 Index Fund (“VFINX”), an equity fund; and (iii) Vanguard Balanced Index Fund (“VBAIX”), a balanced fund. The results are shown in Figure 18.

Figure 18
Volatility Ratios for Five-Year Period
December 2000 – December 2005²³⁹

	Expected Ratio	BLMIS	GATEX	VBMFX	VFINX	VBAIX	VFSIX
Monthly:Annual	3.5	1.4	2.9	2.1	4.1	4.2	4.0
Daily:Monthly	4.6	1.3	3.5	4.1	3.7	3.8	3.5
Daily:Annual	15.9	1.9	10.1	8.8	15.5	15.9	13.7

219. As shown above, the volatility ratios for Gateway and the index funds are consistent with the expected benchmark ratios, while the volatility ratios for BLMIS are inconsistent with what would be expected.
220. That the daily volatility of Madoff’s purported returns was unrelated to the monthly or

²³⁸ I used Merkin’s BLMIS account for Ariel as an example to demonstrate the unrelated daily, monthly and annual volatilities for the Merkin BLMIS Accounts. Given the similarity of returns across the Merkin BLMIS Accounts, analysis using other accounts would likely achieve similar results.

²³⁹ Sources include Settled Cash table, StorQM Customer Statements (for account 1FR070) and Bloomberg market data.

annual volatility was a red flag that Madoff was not executing the purported strategy.

C. People

221. Fund Managers evaluate the personnel and qualifications of the investment advisor as much as the investment itself. This assessment includes the individuals with key roles, the reporting structure of the business, the hiring and termination processes, and whether all team members understand the philosophy and process they are supposed to be implementing.²⁴⁰ It is fundamental for a Fund Manager to continually analyze and investigate the investment advisor and his personnel when conducting due diligence.

1. Excessive Concentration of Duties

222. The excessive concentration of managerial duties in the hands of one or two executives is considered problematic from a due diligence perspective because it significantly limits transparency into the management of the fund.²⁴¹ Investment-related decisions at BLMIS were made solely by Madoff, with little input from other employees or outside parties.
223. As discussed in more detail below in Section VI.F.3, in 2005, the Bayou Fund (“Bayou”) was exposed as a Ponzi scheme.²⁴² Bayou’s collapse highlighted the importance of People-related due diligence because there was a concentration of executive duties in the hands of very few people. Specifically, one of Bayou’s executives, Daniel Marino, was simultaneously the Chief Financial Officer (CFO) and the Chief Operating Officer (COO) of Bayou Group.²⁴³

²⁴⁰ Cambridge Associates Due Diligence Questionnaire, June 2007 (BS00527975); *See Managing the Investment Managers*, CIBC Due Diligence Process (November 2009); *see also* Harrington Dep. 51:17-20, October 1, 2013.

²⁴¹ Complaint for Injunctive and Other Equitable Relief at 6, *Commodity Futures Trading Comm’n v. Bayou Mgmt. et al.* No. 05 Civ. 8374 (S.D.N.Y. Sept. 29, 2005), ECF No. 1. p. 6.

²⁴² Grosvenor Capital Management Report Regarding Samuel Israel/Bayou Management LLC (September 7, 2005) (BS00151981 at 1981-85).

²⁴³ Complaint for Injunctive and Other Equitable Relief at 4, *Commodity Futures Trading Comm’n v. Bayou Mgmt. et al.* No. 05 Civ. 8374 (S.D.N.Y. Sept. 29, 2005), ECF No. 1.

224. Much like the excessive concentration of duties in the hands of Daniel Marino at Bayou, the excessive concentration of duties in the hands of Madoff at BLMIS was suspicious and created an opportunity for fraud.

2. Lack of Credentials

225. A global investment management firm as large as BLMIS (growing to tens of billions in AUM) would, in my experience, have employed a workforce that possessed credentials more like traditional investment management firms.²⁴⁴ General partners and general portfolio managers at hedge funds and other investment vehicles would be expected, at a minimum, to hold a bachelor's degree. Additionally, it was common for them to also hold advanced degrees (e.g., master's degrees or PhDs) and professional certifications (e.g., Chartered Financial Analyst or Certified Public Accountant).²⁴⁵
226. It is customary to review ADV forms as part of due diligence, and in its SEC Form ADV, BLMIS was listed as having no more than five employees who performed investment advisory (i.e., BLMIS) functions.²⁴⁶ It would be difficult for a multi-billion dollar investment management business to operate with so few employees who served in that role. The fact that BLMIS may have been employing a black box or algorithm as part of its strategy²⁴⁷ would necessitate that these employees be capable of developing

²⁴⁴ A FINRA *BrokerCheck* providing a business description for BLMIS would have shown, at any time, that Madoff did not disclose his investment advisory business even though Madoff was making all investment decisions, and in all other respects serving as an investment advisor to investors such as Merkin. CRD Number 2625 and SEC File No. 8-08132. Additionally, Victor Teicher and Noreen Harrington both note that infrastructure needs grow as assets increase. Teicher Dep. 65:3-18, October 29, 2013, Harrington Dep. 83:4-21, October 1, 2013.

²⁴⁵ General partners are individuals who, regardless of title, focus on daily operations such as trading, modeling, research, risk control, and general fund support. Considering data between 1975 and 2010, 100% of directors or managers held bachelor's degrees, 61% held master's degrees, 29% held PhDs, 1% held JDs, 8% were Chartered Financial Analyst ("CFA") charterholders, 4% were Certified Public Accountants ("CPA"), and 1% were Financial Risk Managers ("FRM"). Barclay Hedge Database, August 2011.

²⁴⁶ SEC Form ADV, Bernard L. Madoff Investment Securities, August 25, 2006 (PUBLIC0003729 at 734). BLMIS listed one-to-five total employees performing investment advisory functions.

²⁴⁷ Merkin Dep. 308:8-20, February 24, 2015; Merkin Dep. 417:16-25, 433:3-434:6, 562:2-14, 574:8-13, February 25, 2015.

mathematical algorithms or other related analyses for the black box. For this reason alone it would be important to investigate the backgrounds (e.g., education) of these employees.

227. Due diligence would have revealed that BLMIS had a limited number of personnel, with no advanced education or training, who were purportedly implementing a multi-billion dollar investment strategy. This lack of credentials was a red flag because it was inconsistent with industry customs and practices.

3. Lack of Disclosures/Transparency

228. BLMIS also lacked typical disclosures/operational transparency provided by investment advisors. Some of the most basic staff-related and background-related due diligence typically performed by Fund Managers includes questions for which I did not find any answers for in the documents produced by Merkin. For example, as discussed above in Section V.B.1, typical staff-related and background-related due diligence includes a collection of basic staff and organizational information such as:

- Number of employees, type, positions, and compensation structure;
- Legal structure of the company;
- Total AUM and growth of assets under management;
- Percentage of AUM represented by the largest clients;
- Breakdown of AUM by type of client group; and
- Identification of the largest clients.²⁴⁸

229. While some investment advisors can be secretive about certain information (e.g., trading strategies), other information such as the size of the fund and the growth of the fund is typically disclosed by investment advisors.

230. Typically this, and other information, can be found in DDQs or marketing documents

²⁴⁸ AIMA's Illustrative Questionnaire for Due Diligence of Fund of Hedge Funds Managers (2004) (BS00115001 at 5001-20).

produced by the investment advisor. As a multi-billion dollar investment advisor executing a consistent investment strategy across all investors, it would have been consistent with industry customs and practices for Madoff to maintain some type of marketing documentation. This documentation would have provided detailed information regarding his strategy, risks associated with the strategy, background on himself and key employees, and a detailed explanation of his fee structure.²⁴⁹

231. Hedge funds typically convey such information to Fund Managers and other investors through a Private Placement Memorandum, which is a standard hedge fund marketing document.²⁵⁰ Alternatively, if a formal Private Placement Memorandum is not used, the hedge fund or other investment advisor will typically convey the information through a document, such as a PowerPoint presentation, containing all of the relevant information. I did not identify any such marketing documents for BLMIS in the documents produced by Merkin.
232. There is also no indication that any information was made available about the staff composition of BLMIS.²⁵¹ For example, if a Fund Manager were to meet with Madoff and observe the operation, it would be important to understand which employees were part of the investment advisory business and which employees were part of the broker-dealer business that Madoff was also running. A key aspect of employee-related due diligence is understanding the backgrounds of the employees involved in the investment

²⁴⁹ Government Accountability Office, *Hedge Funds: Regulators and Market Participants are Taking Steps to Strengthen Market Discipline, but Continued Attention is Needed* 27, Report to Congressional Requesters (January 2008). Mutual Funds also prepare prospectuses for potential investors with information similar to a hedge fund Private Placement Memorandum. Mutual fund prospectuses include information on investment strategy, fee structure, past performance, and the investment manager in charge of the fund. See also Mahagan Dep. 11:7-14, November 22, 2013.

²⁵⁰ Douglas Hammer, *U.S. Regulation of Hedge Funds* (American Bar Association 2005). Merkin stated, “did I think of [Madoff] as a hedge fund, the answer is, absolutely, yes.” *Jesselson v. Merkin*, Hearing Transcript 388:2-5, September 13, 2011.

²⁵¹ Merkin Dep. 433:14-434:6, February 25, 2015.

advisory business specifically.²⁵²

233. BLMIS's lack of disclosures and operational transparency was a red flag because it was suspicious and inconsistent with industry customs and practices.

D. Performance

234. In evaluating the performance of an investment advisor, whether initially or during ongoing due diligence, both qualitative and quantitative measures are considered, and all analyses must be consistent with the advisor's stated investment style.²⁵³ Quantitative analysis in particular is a basic tenet of Performance-related due diligence.²⁵⁴
235. Ongoing performance due diligence is particularly important as an investment grows in size. For example, as a Fund Manager for the Defendant Funds, Merkin began investing with BLMIS in 1990 and remained invested through its collapse in December 2008.²⁵⁵ By 2007, the customer statements for the Merkin BLMIS Accounts reflected more than \$2 billion.²⁵⁶ The annual returns for the Merkin BLMIS Accounts were never lower than 9% in any year, and only had 10 months of negative returns out of 222 total months in an 18.5 year period.²⁵⁷
236. The quantitative analyses I perform on the Merkin BLMIS Accounts below includes peer analysis, performance analysis in times of market stress, correlation analysis, performance attribution and scenario analysis. These due diligence analyses are customary in the industry to help safeguard against fraud and other deceit or misappropriation by an investment advisor.

²⁵² AIMA's Illustrative Questionnaire for Due Diligence of Fund of Hedge Funds Managers (2004) (BS00115001 at 5001-20).

²⁵³ See, e.g., Orchard Dep. 19:2-8, October 8, 2013; Presentation by UJA- Federation of New York on Portfolio Performance Analysis and Review, April 21, 2004 (BS00082102 at 102-154).

²⁵⁴ See, e.g., Kim Dep. 23:15-24:19, November 19, 2013; BS00456856.

²⁵⁵ Statement for Account Number 1-A0042, October 31, 1990 (MF00027830 at 830).

²⁵⁶ SQL Database: StorQM Customer Statements.

²⁵⁷ SQL Database: StorQM Customer Statements, and Customer Ledgers.

1. Peer Analysis: Comparison to Peers and Benchmarks

237. In the due diligence process, an assessment of investment advisor performance is not conducted in a vacuum. It is customary to continually evaluate the performance of an investment advisor in the context of other funds, benchmarks, and general market movements, i.e., peer groups.²⁵⁸ The peer analysis presented herein uses information publicly available from third-party providers, and incorporates the evaluation of widely-recognized market events.
238. I examined the pattern of historical returns for the Merkin BLMIS Accounts within the context of different peer groups, such as hedge funds, mutual funds, world-class investment advisors, indices, and Merkin's own portfolio. This range of investment alternatives casts a wide net for performance comparisons. As further discussed below, when selecting peer groups, I selected funds that exhibited similar characteristics to BLMIS as related to strategy, asset classification, and/or skill of the investment advisor (e.g., when analyzing elite investment advisors).
239. Peer groups and benchmarks are selected for both comparison purposes as well as to provide context for the purported results reflected in the Merkin BLMIS Accounts. It is important to understand that the Madoff SSC strategy was neither an equity strategy, nor a fixed income strategy. It was a hybrid strategy that should exhibit characteristics of both an equity strategy (because the returns should move both up and down with the movements in the underlying S&P 100 Index), and a fixed income strategy (because the volatility of the returns was limited on the upside and downside by the strike prices). Therefore, benchmarks for the Madoff SSC strategy should not be limited to only equity-based returns or treasury returns. The peer groups and benchmarks I chose are discussed below.

²⁵⁸ A peer group is a collection of other funds used for comparison analysis, typically for performance comparison Edward J. Stavetski, *Managing Hedge Fund Managers* 71 (Hoboken, New Jersey: John Wiley & Sons 2009); G. Timothy Haight, Stephen O. Morell & Glenn E. Ross, *How to Select Investment Managers & Evaluate Performance* 248 (Hoboken: John Wiley & Sons, Inc. 2007).

240. The peer analysis presented herein includes six metrics: (i) Sharpe Ratio; (ii) Sortino Ratio; (iii) number or percent of positive months; (iv) number or percent of negative months; (v) maximum drawdown; and (vi) number of months in drawdown. All six metrics were consistent with industry customs and practices during the Defendant Funds' investments with BLMIS and are analyses that I performed as part of due diligence on BLMIS.
241. The Sharpe Ratio and the Sortino Ratio are two primary metrics used to evaluate investment advisor performance on a risk-adjusted basis. The Sharpe Ratio measures the amount of return above a risk free rate per unit of risk. It is calculated as the mean portfolio return less a risk free return ($r_p - r_f$), divided by the standard deviation of the returns.²⁵⁹ A higher Sharpe Ratio indicates that the investment is generating more return for the same amount of risk.
242. The Sortino Ratio is a form of the Sharpe Ratio where only downside risk is incorporated into the formula by calculating the standard deviation of returns that are only negative.²⁶⁰ In this manner, the Sortino Ratio does not penalize performance for being volatile if the volatility always results in positive performance.
243. I utilized the Sharpe Ratio and the Sortino Ratio based upon the popularity of these metrics in the investment management industry, as well as on their acceptance within the academic community.²⁶¹ The ratios are common statistics used to compare performance

²⁵⁹ The Sharpe Ratio was developed by William Sharpe and made public in his 1966 Journal of Business publication *Mutual Fund Performance*. William Sharpe, *Mutual Fund Performance*, The Journal of Business, 119-128 (Vol. 39, No. 1, Part 2, January 1966).

²⁶⁰ In the formula for Sortino Ratio the positive returns are set to 0 for purposes of calculating the standard deviation. The Sortino Ratio was developed by Frank Sortino and Lee Price and made public in their 1994 Journal of Investing publication *Performance Measurement in a Downside Risk Framework*. Frank Sortino and Lee Price, *Performance Measurement in a Downside Risk Framework*, The Journal of Investing 59-64 (Vol. 3, No.3 Fall 1994). See also, FRANK J. TRAVERS, INVESTMENT MANAGER ANALYSIS 93-94 (2004).

²⁶¹ See the following: (i) http://www.morningstar.com/InvGlossary/sharpe_ratio.aspx; (ii) http://www.morningstar.com/InvGlossary/sortino_ratio_definition_what_is.aspx; and (iii) CFA Institute, *Alternative Investments, Risk Management, and the Application of Derivatives CFA Program Curriculum, Level III*, Vol. 5, 82-83 (2014).

between two or more funds, and both of these risk-adjusted performance metrics were well-established due diligence tools during the relevant time period of the Defendant Funds' investments with BLMIS.²⁶²

244. Two other related metrics, the number of months with positive returns and the number of months with negative returns, are also included in the analysis as they are helpful in evaluating the performance of investment advisors. Merkin used similar metrics (percent of positive months) in promoting his own funds.²⁶³
245. Finally, I included an analysis of drawdowns, looking both at maximum drawdowns and the number of months in drawdown. When calculated on a monthly basis, a drawdown occurs when a portfolio experiences a loss in the current month that brings the portfolio below its previous high. Maximum drawdown would then be the largest drop between peak to trough in the period.²⁶⁴ Months in drawdown would be the number of months in which the current portfolio is below the previous high. These analyses are helpful in evaluating the magnitude and duration of losses.
246. As detailed below, across all six performance metrics, all peer groups, and for all time periods considered, BLMIS outperformed its peers to a degree of statistical improbability, if not impossibility. It is highly unlikely for an investment advisor to outperform, and often by a significant amount, every peer group, across these performance metrics, across lengthy periods of time.
247. This purported performance was indicia of fraud and a red flag that Madoff was not executing the Madoff SSC strategy. Furthermore, these results should have prompted additional quantitative due diligence on the purported execution of the strategy, including

²⁶² See, e.g., GCCSAA00045752 at 763; GCCSAA00066993 at 995; GCCSAB00191509 at 109-118; NYGSAA0247976 at 976, 978-979.

²⁶³ BS00528457 at 457.

²⁶⁴ Maximum drawdown is one of the analytics that Noreen Harrington used while performing due diligence at Sterling Stamos. Harrington Dep. 52:14-25, October 1, 2013; see also, BS00528457 at 457.

performance attribution, reverse engineering and alpha analysis. As discussed in Sections VI.D.4, VI.B.2 and VI.B.1, due diligence in these areas would have revealed significant red flags where the only reasonable explanation was fraud.

a) Hedge Funds

248. My analysis of hedge fund returns involves data obtained from BarclayHedge, a publicly-available comprehensive hedge fund database.²⁶⁵ Using this database I created a peer group of hedge funds implementing comparable strategies to the Madoff SSC strategy.
249. BarclayHedge includes information on approximately 8,700 hedge funds, and categorizes these hedge funds into 35 different primary strategies based on the type of strategy followed by the hedge fund.²⁶⁶ Consistent with due diligence customs and practices, I reviewed the strategies used by BarclayHedge, and identified those strategies that I considered most comparable to the Madoff SSC strategy. The strategies that I identified as most comparable to the Madoff SSC strategy were: (i) equity market neutral; (ii) equity long/short; and (iii) equity long-bias. These strategies are most comparable because they invest in hedged domestic equity strategies.²⁶⁷
250. The descriptions provided by BarclayHedge for each strategy are as follows:
- **Equity Market Neutral:** This investment strategy is designed to exploit equity market inefficiencies and usually involves being simultaneously long and short matched equity portfolios of the same size within a country. Market neutral portfolios are designed to be either beta or currency neutral, or both. Well-designed portfolios

²⁶⁵ <http://www.barclayhedge.com>. Of the four fund types in the BarclayHedge database, my sample includes only “Hedge Funds,” thereby excluding the following fund types: (i) Funds of Funds; (ii) CTA; and (iii) Benchmark Indices. Only hedge funds that report returns “Net of All Fees” have been included. For each time period examined, the sample includes only funds which published returns for every month in the period of interest.

²⁶⁶ BarclayHedge assigns one primary strategy to each hedge fund.

²⁶⁷ I further note that BarclayHedge includes American Masters Broad Market Fund, L.P., a hedge fund run by Tremont that was invested with BLMIS, within the “equity market neutral” category.

typically control for industry, sector, market capitalization, and other exposures. Leverage is often applied to enhance returns.²⁶⁸

- **Equity Long/Short:** This directional strategy involves equity-oriented investing on both the long and short sides of the market. The objective is not to be market neutral. Managers have the ability to shift from value to growth, from small to medium to large capitalization stocks, and from a net long position to a net short position. Managers may use futures and options to hedge. The focus may be regional or sector specific.²⁶⁹
- **Equity Long-Bias:** Equity Long/Short managers are typically considered long-biased when the average net long exposure of their portfolio is greater than 30%.²⁷⁰

251. I calculated the Sharpe Ratio, Sortino Ratio, number of months with positive and negative returns, maximum drawdown, and percent of months in drawdown on ten-year rolling bases for the period January 1991 through November 2008. I created a peer group of funds classified in the three strategies identified above that reported ten years of continuous returns (the “Hedge Fund Peer Group”). I used ten-year periods for purposes of my performance analyses because ten years reduces the margin of error (as opposed to using three-year or five-year time periods for example).
252. Historical performance analyses using ten years of data is standard for the Association for Investment Management and Research (“AIMR”) Performance Presentation Standards (“AIMR-PPS”).²⁷¹ In addition, in order to be compliant under the Global Investment Performance Standards (“GIPS”) published by the CFA Institute, and formally endorsed

²⁶⁸ http://www.barclayhedge.com/research/indices/ghs/Equity_Market_Neutral_Index.html.

²⁶⁹ http://www.barclayhedge.com/research/indices/ghs/Equity_Long_Short_Index.html.

²⁷⁰ http://www.barclayhedge.com/research/indices/ghs/Equity_Long_Bias_Index.html.

²⁷¹ *AIMR-Performance Presentation Standards*, Association for Investment Management and Research 4 (2001), www.aimr.org. The AIMR-PPS standards were first introduced in 1987.

in 1999,²⁷² firms must initially report at least five years of historical performance, building up to a minimum of ten years of historical performance.²⁷³

253. There were nine 10-year rolling periods between 1991 and 2008. I assembled the returns for all funds in the Hedge Fund Peer Group that continuously reported monthly performance for each 10-year rolling period (the funds in each period are referred to as a “Rolling 10-Year Hedge Fund Peer Group”).²⁷⁴

254. I evaluated each performance metric of interest over 10 years of returns data for each of the Rolling 10-Year Hedge Fund Peer Groups. For example, the Sharpe Ratios in each ten-year period presented herein were calculated using returns data over 120 months.²⁷⁵ The results below show that the metrics for the Merkin BLMIS Accounts were consistently significant outliers in the hedge fund industry from 1991 through 2008.

(1) Sharpe and Sortino Ratios

255. First, I calculated the Sharpe and Sortino Ratios for the Hedge Fund Peer Group. As discussed above, these metrics are used to evaluate investment advisor performance on a risk-adjusted basis. As shown in Figure 19, the Sharpe Ratio for the Merkin BLMIS Accounts was higher than the maximum Sharpe Ratio of any fund in the Rolling 10-Year Hedge Fund Peer Groups for every period for which data was analyzed (the rolling 10-year periods ending 2000 through 2008).

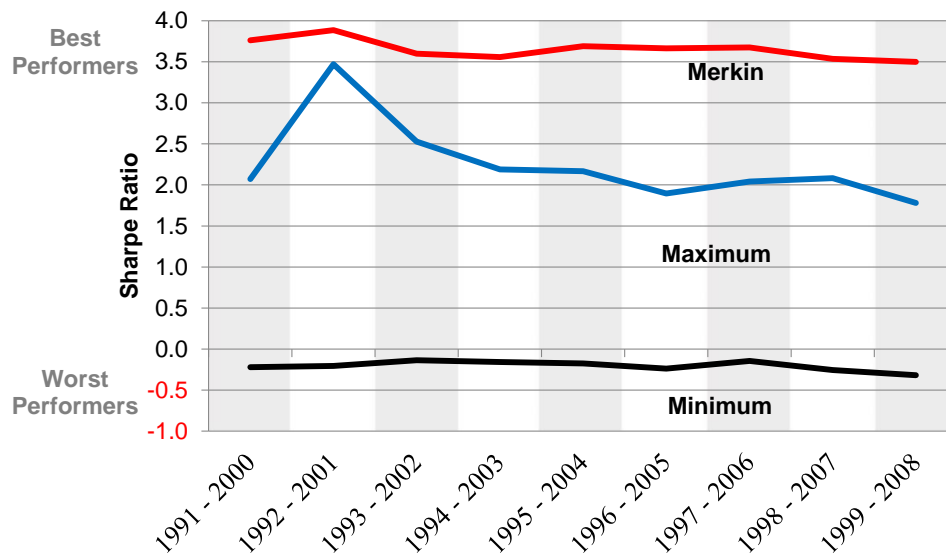
²⁷² GIPS was endorsed in 1999 by AIMR, the predecessor to CFA Institute.

²⁷³ CFA Institute, Global Investment Performance Standards (2010).

²⁷⁴ For example, the funds included in the 10-year period from January 1991 through December 2000 are referred to as the “2000 Rolling 10-Year Hedge Fund Peer Group.” This is the first ten-year period in the dataset with at least 30 funds. The peer group for this period includes 58 funds. Each ten-year period includes a different set of hedge funds, i.e., those hedge funds for which ten years of monthly data is available over the relevant time period. Some hedge funds appear in multiple ten-year rolling periods.

²⁷⁵ Given that BLMIS’s operations ceased in December 2008, the 2008 Rolling 10-Year Peer Group runs from January 2000 through November 2008. Accordingly, the metrics for this peer group are calculated over 119 months of returns data.

Figure 19
Sharpe Ratio for Hedge Fund Peer Group v. Merkin BLMIS Accounts²⁷⁶
Rolling 10-Year Periods Ending 2000-2008



256. The only year in which the Sharpe Ratio for the Hedge Fund Peer Groups was somewhat close to that of the Merkin BLMIS Accounts, was 2001. Moreover, the only fund that generated a Sharpe Ratio close to that of the Merkin BLMIS Accounts for the 2001 rolling 10-year period was American Masters Broad Market Fund, L.P., which was managed by Tremont and invested with BLMIS.²⁷⁷ In other words, the only fund which produced a 10-year Sharpe Ratio from 2000 through 2008 that was close to the Sharpe Ratio for the Merkin BLMIS Accounts was a BLMIS feeder fund.

257. Performance comparison charts for the 2000 and 2008 rolling 10-year periods highlight the Merkin BLMIS Accounts as an obvious outlier relative to the distribution of hedge fund peers. (See **Schedule 13** and **Schedule 14**.)

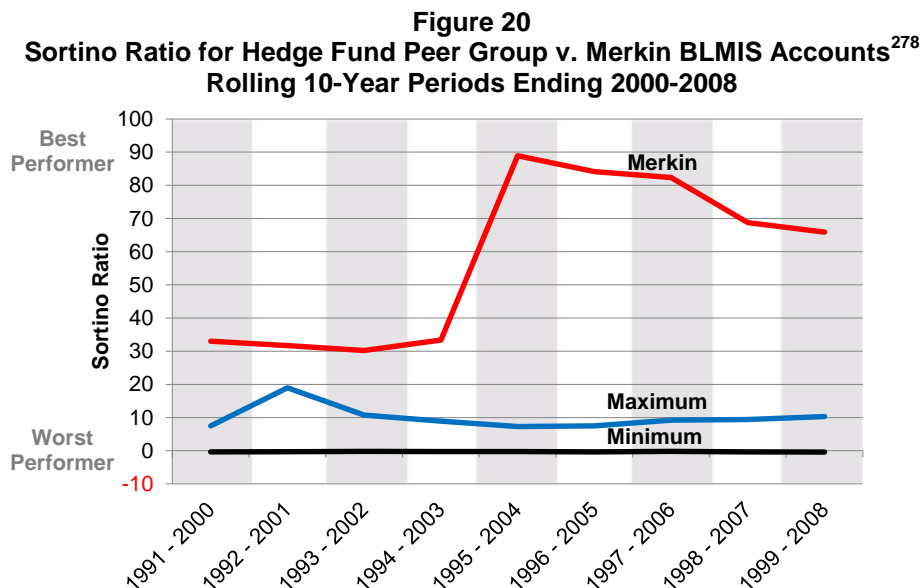
258. While Figure 19 above includes all hedge funds in the Hedge Fund Peer Group, the same

²⁷⁶ 2000 is the first year in which there is sufficient data available for a 10 year period. 2008 data is through November 2008. Sources include StorQM Customer Statements, Customer Ledgers, Settled Cash table, BarclayHedge Database, Federal Reserve FRB H.15 Release.

²⁷⁷ This is the only 10-year rolling period in which continuous monthly returns were reported by Tremont.

conclusions, by definition, are drawn from the three strategy/categories that comprise the Hedge Fund Peer Group. That is, if the maximum Sharpe Ratio across all hedge funds in all strategies is less than the Sharpe Ratio for the Merkin BLMIS Accounts, then the maximum Sharpe Ratio in any one strategy/category will be less than the Sharpe Ratio for the Merkin BLMIS Accounts.

259. The Sortino Ratios for the Merkin BLMIS Accounts were also significantly higher than the maximum for the Rolling 10-Year Hedge Fund Peer Groups for every period for which data was analyzed as illustrated in Figure 20.



260. The Sortino Ratios for the Merkin BLMIS Accounts were significantly higher than their peers primarily because the Merkin BLMIS Accounts rarely had negative returns.²⁷⁹ The

²⁷⁸ 2000 is the first year in which there is sufficient data available for a 10 year period. 2008 data is through November 2008. Sources include StorQM Customer Statements, Customer Ledgers, Settled Cash table, BarclayHedge Database, Federal Reserve FRB H.15 Release.

²⁷⁹ The only fund that generated a Sortino Ratio closer to that of the Merkin BLMIS Accounts for the 2001 rolling 10-year period was American Masters Broad Market Fund, L.P., which was managed by Tremont and invested with BLMIS.

increase in the Sortino Ratio beginning with the 1995-2004 ten year period is a result of a prolonged period of time beginning in 1995 when the Merkin BLMIS Accounts had very few negative months. In the first 51 months (i.e., through December 1994) the Merkin BLMIS Accounts had four months with negative returns. Over the next 167 months there were only five total months with negative returns. (*See also Schedule 15 and Schedule 16.*)

(2) Number of Months with Positive/Negative Returns

261. Next, I calculated the number of months with positive returns and the number of months with negative returns for the Merkin BLMIS Accounts and for the Hedge Fund Peer Group. Figure 21 illustrates that the Merkin BLMIS Accounts were again outliers in terms of months with consistently positive returns and a lack of months with negative returns.

Figure 21
Number of Positive and Negative Months for Hedge Fund Peer Group v. Merkin
BLMIS Accounts
Rolling 10-Year Periods Ending 2000-2008

Rolling Period	Number of Positive Months				Number of Negative Months		
	Peer Group Min	Peer Group Max	Merkin		Peer Group Min	Peer Group Max	Merkin
1991 - 2000	60	94	115		23	59	5
1992 - 2001	58	114	116		5	62	4
1993 - 2002	59	99	115		21	61	5
1994 - 2003	60	100	114		20	60	6
1995 - 2004	59	101	116		19	61	4
1996 - 2005	59	99	116		21	61	4
1997 - 2006	58	100	116		20	62	4
1998 - 2007	61	101	115		18	59	5
1999 - 2008	57	96	114		22	62	5

262. The Merkin BLMIS Accounts had more months with positive returns than every fund in the Rolling 10-Year Hedge Fund Peer Groups for every period for which data was analyzed (2000 through 2008). Similarly, the Merkin BLMIS Accounts had fewer months with negative returns than every fund in the Rolling 10-Year Hedge Fund Peer Groups for every period for which data was analyzed (2000 through 2008). (*See also*

Schedule 17 to Schedule 22.)

(3) Drawdown

263. Finally, I calculated the maximum drawdown and the percent of months in drawdown for the Merkin BLMIS Accounts and for the Hedge Fund Peer Group. As discussed above, when calculated on a monthly basis, a drawdown occurs when a portfolio experiences a loss in the current month that brings the portfolio below its previous high. Maximum drawdown is the largest drop between peak to trough in the period. Percent of months in drawdown is the percent of months in which the current portfolio is below the previous high.

Figure 22
Drawdown Metrics for Hedge Fund Peer Group v. Merkin BLMIS Accounts
Rolling 10-Year Periods Ending 2000-2008

Rolling Period	Maximum Drawdown				Months in Drawdown		
	Peer Group Min	Peer Group Max	Merkin		Peer Group Min	Peer Group Max	Merkin
1991 - 2000	-62.9%	-2.6%	-0.9%		34%	89%	4%
1992 - 2001	-86.7%	-1.4%	-0.9%		4%	93%	3%
1993 - 2002	-86.7%	-3.3%	-0.9%		25%	86%	4%
1994 - 2003	-86.7%	-3.3%	-0.9%		25%	93%	6%
1995 - 2004	-86.7%	-3.4%	-0.4%		23%	96%	4%
1996 - 2005	-93.3%	-3.4%	-0.4%		25%	94%	4%
1997 - 2006	-93.3%	-3.2%	-0.4%		24%	95%	4%
1998 - 2007	-93.3%	-3.2%	-0.4%		23%	98%	5%
1999 - 2008	-80.4%	-4.4%	-0.4%		25%	97%	5%

264. As shown in Figure 22, the Merkin BLMIS Accounts outperformed the Hedge Fund Peer Group for every single rolling period in both maximum drawdown and percent of months in drawdown. (See also **Schedule 23 to Schedule 28.**)

(4) Hedge Fund Peer Group Conclusion

265. The analyses above show that the Merkin BLMIS Accounts outperformed, and often by a significant amount, the Hedge Fund Peer Group, across every performance metric, for every rolling period.

b) Mutual Funds

266. Consistent with due diligence customs and practices I also considered a peer analysis using mutual funds that implemented investment strategies comparable to the Madoff SSC strategy. As part of quantitative due diligence, it is custom and practice to review both hedge funds and mutual funds for investment strategies comparable to the target investment strategy.
267. My analysis of mutual fund returns involves data obtained from Morningstar, a comprehensive mutual fund database. Morningstar includes information on over 131,000 mutual funds,²⁸⁰ and categorizes these mutual funds into 7 global asset strategies, with multiple subcategories for a total of 98 possible strategies/categories.²⁸¹ Consistent with due diligence customs and practices I reviewed the categories used by Morningstar and identified those categories that included strategies that I considered most comparable to the Madoff SSC strategy.
268. I identified one such category of mutual funds (the Hedge Fund sub-category within the Alternative global asset category), and all of the mutual funds categorized by Morningstar as “Hedge Fund” were included in my peer group (“Mutual Fund Peer Group”). While these mutual funds are categorized as “Hedge Fund” by Morningstar, the legal structure of each fund is that of a mutual fund. Morningstar’s Hedge Fund category includes any mutual fund that engages in what Morningstar defines as “alternative strategies.”²⁸² Morningstar defines the Hedge Fund category as follows:

²⁸⁰ <http://corporate.morningstar.com/US/documents/Brochures/DirectProductBrochure.pdf> (accessed on March 4, 2015).

²⁸¹ The number of subcategories per global asset category ranges from 1 to 48. *The Morningstar Global Category Classifications*, Morningstar Methodology Paper (March 31, 2010).

²⁸² *The Morningstar Global Category Classifications*, Morningstar Methodology Paper (March 31, 2010).

- Hedge Fund: Hedge fund portfolios engage in alternative strategies. Hedge fund portfolios can focus on specific areas of the market and/or specific trading strategies.²⁸³

269. Consistent with my evaluation of hedge funds, I assessed the Sharpe Ratio, Sortino Ratio, number of months with positive and negative returns, maximum drawdown, and percent of months in drawdown on ten-year rolling bases. I created a peer group of funds classified in the Hedge Fund category that reported ten years of continuous returns (the “Mutual Fund Peer Group”). There were four 10-year rolling periods between 1996 and 2008. My analysis begins in 1996 because 2005 is the first year in which there is sufficient Morningstar data available for a ten-year period.²⁸⁴ I assembled the returns for all funds in the Mutual Fund Peer Group that continuously reported monthly performance for each 10-year rolling period (the funds in each period are referred to as a “Rolling 10-Year Mutual Fund Peer Group”)²⁸⁵ I note that Gateway, a mutual fund implementing an SSC strategy, is included in the Mutual Fund Peer Group for every 10-year rolling period.
270. I evaluated each metric of interest over 10 years of returns data for each of the four Rolling 10-Year Mutual Fund Peer Groups. The results below show that the metrics for the Merkin BLMIS Accounts were consistently significant outliers in the mutual fund industry from 1996 through 2008.

(1) Sharpe and Sortino Ratios

271. First, I calculated the Sharpe and Sortino Ratios for the Mutual Fund Peer Group. As discussed above, these metrics are used to evaluate investment advisor performance on a

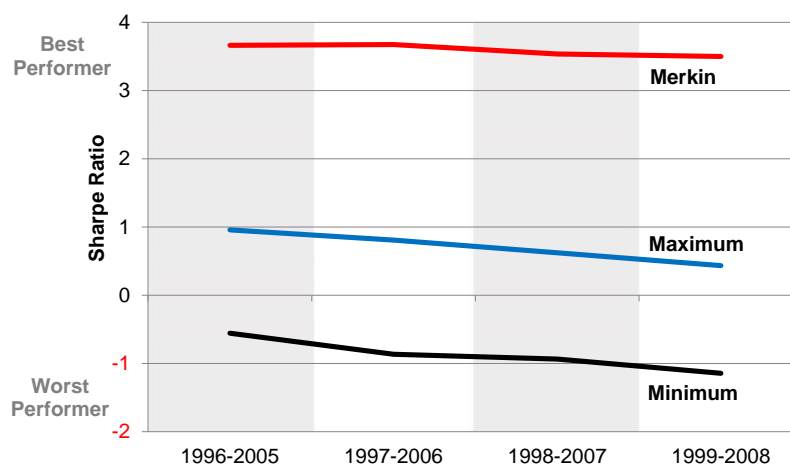
²⁸³ *The Morningstar Global Category Classifications*, Morningstar Methodology Paper (March 31, 2010).

²⁸⁴ This is the first ten-year period in the dataset with at least 30 funds. The peer group for this period includes 31 funds.

²⁸⁵ For example, the funds included in the 10-year period from January 1996 through December 2005 are referred to as the “2005 Rolling 10-Year Mutual Fund Peer Group.” This is the first ten-year period in the dataset with at least 30 funds. The peer group for this period includes 31 funds. Each ten-year period includes a different set of mutual funds, i.e., those mutual funds for which ten years of monthly data is available over the relevant time period. Some mutual funds appear in multiple ten-year rolling periods.

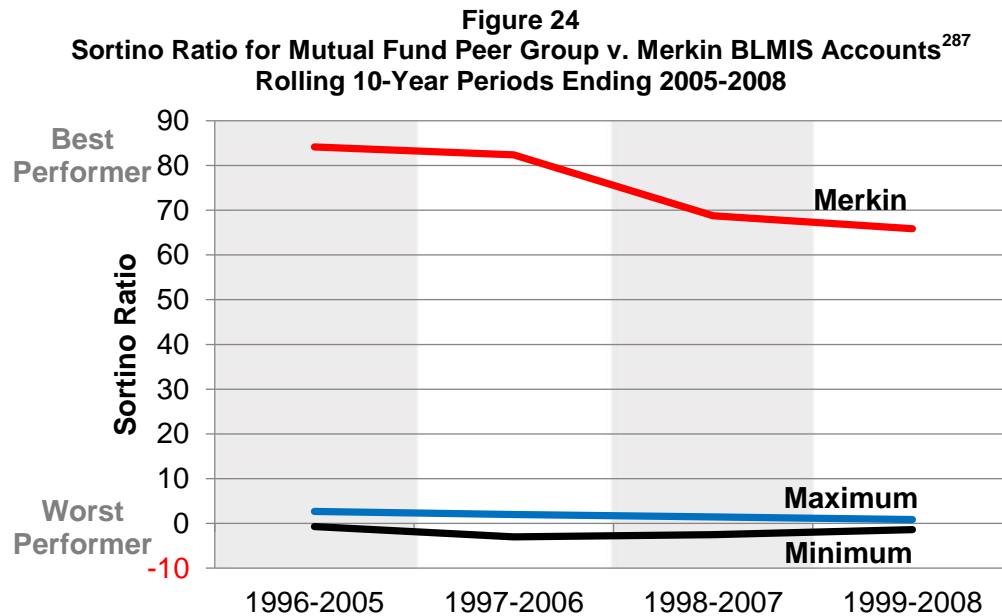
risk-adjusted basis. As shown in Figure 23, the Sharpe Ratio for the Merkin BLMIS Accounts was higher than the maximum Sharpe Ratio of any fund in the Rolling 10-Year Mutual Fund Peer Groups for every period for which data was analyzed (the rolling 10-year periods ending 2005 through 2008). (*See also Schedule 29 and Schedule 30.*)

Figure 23
Sharpe Ratio for Mutual Fund Peer Group v. Merkin BLMIS Accounts²⁸⁶
Rolling 10-Year Periods Ending 2005-2008



272. Similarly, as shown in Figure 24, the Sortino Ratio for the Merkin BLMIS Accounts far exceeded the maximum Sortino Ratio of every other fund in the Rolling 10-Year Mutual Fund Peer Groups for every period for which data was analyzed.

²⁸⁶ 2008 data is through November 2008. Sources include StorQM Customer Statements, Settled Cash table, Morningstar Direct Database, Federal Reserve FRB H.15 Release.



273. My findings related to the 10-Year Rolling Mutual Fund Peer Groups are as compelling as those for the 10-Year Rolling Hedge Fund Peer Groups. Again, the Merkin BLMIS Accounts are an outlier in the risk-adjusted performance metrics, with Sharpe and Sortino Ratios far exceeding the maximum of every other fund. (*See also Schedule 31 and Schedule 32.*)

(2) Number of Months with Positive/Negative Returns

274. Next, I calculated the number of months with positive returns and the number of months with negative returns for the Merkin BLMIS Accounts and for the Mutual Fund Peer Group. As shown in Figure 25, the Merkin BLMIS Accounts also posted a far greater number of months with positive returns and far fewer months with negative returns than the Mutual Fund Peer Group.

²⁸⁷ 2008 data is through November 2008. Sources include StorQM Customer Statements, Settled Cash table, Morningstar Direct Database, Federal Reserve FRB H.15 Release.

Figure 25
Number of Positive and Negative Months for Mutual Fund Peer Group v. Merkin
BLMIS Accounts²⁸⁸
Rolling 10-Year Periods Ending 2005-2008

Rolling Period	Number of Positive Months				Number of Negative Months		
	Peer Group Min	Peer Group Max	Merkin		Peer Group Min	Peer Group Max	Merkin
1996 - 2005	49	100	116		20	69	4
1997 - 2006	48	101	116		19	71	4
1998 - 2007	41	103	115		17	78	5
1999 - 2008	36	99	114		20	81	5

275. The Merkin BLMIS Accounts had more months with positive returns than every fund in the Rolling 10-Year Mutual Fund Peer Groups for every period for which data was analyzed (2005 through 2008). Similarly, the Merkin BLMIS Accounts had fewer months with negative returns than every fund in the Rolling 10-Year Mutual Fund Peer Groups for every period for which data was analyzed (2005 through 2008). (*See also Schedule 33 to Schedule 38.*)

(3) Drawdown

276. Next, I calculated the maximum drawdown and the percent of months in drawdown for the Merkin BLMIS Accounts and for the Mutual Fund Peer Group.

²⁸⁸ 2008 data is through November 2008. Sources include StorQM Customer Statements, Settled Cash table, Morningstar Direct Database, Federal Reserve FRB H.15 Release.

Figure 26
Drawdown Metrics for Mutual Fund Peer Group v. Merkin BLMIS Accounts²⁸⁹
Rolling 10-Year Periods Ending 2005-2008

Rolling Period	Maximum Drawdown			Months in Drawdown		
	Peer Group Min	Peer Group Max	Merkin	Peer Group Min	Peer Group Max	Merkin
1996 - 2005	-68.6%	-2.3%	-0.4%	25%	93%	4%
1997 - 2006	-68.6%	-0.6%	-0.4%	19%	95%	4%
1998 - 2007	-68.6%	-0.5%	-0.4%	18%	92%	5%
1999 - 2008	-71.0%	-1.3%	-0.4%	23%	97%	5%

277. As shown in Figure 26, the Merkin BLMIS Accounts again outperformed every fund in the Rolling 10-Year Mutual Fund Peer Groups in both maximum drawdown and percent of months in drawdown for every period for which data was analyzed (2005 through 2008). (See also **Schedule 39** to **Schedule 44**.)

(4) Gateway

278. Gateway is a mutual fund within the Mutual Fund Peer Group that has been implementing an SSC strategy using stocks from the S&P 500 since 1988.²⁹⁰ It is custom and practice in the investment management industry to perform peer analysis using other funds that employ strategies as close as possible to the subject investment.

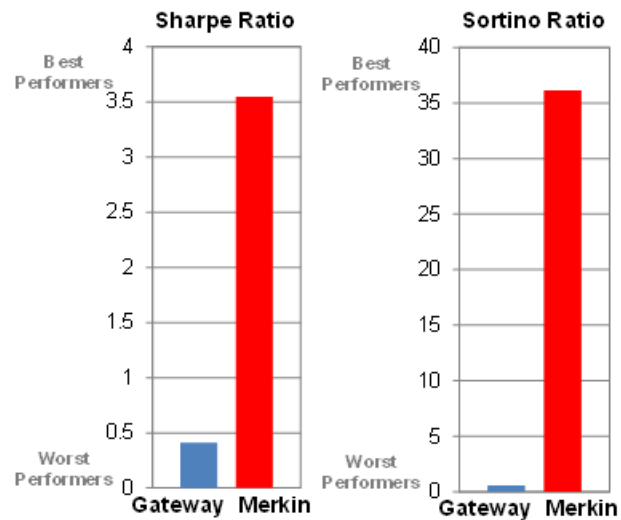
279. Gateway employs a strategy that is similar to the Madoff SSC strategy, yet the performance of the Merkin BLMIS Accounts dominates Gateway with respect to every analyzed metric. (See Figure 27, Figure 28, and Figure 29.)²⁹¹

²⁸⁹ 2008 data is through November 2008. Sources include StorQM Customer Statements, Settled Cash table, Morningstar Direct Database, Federal Reserve FRB H.15 Release.

²⁹⁰ *The Gateway Fund's Hedging Edge, Markets & Finance*, BLOOMBERG BUSINESS (April 20, 2005), <http://www.bloomberg.com/bw/stories/2005-04-20/the-gateway-funds-hedging-edge> ; Gateway Fund Performance Profile, December 31, 2014, p.2, http://ngam.natixis.com/docs/59/77/GA07-1214_F.pdf.

²⁹¹ The analyses discussed above relating to the Mutual Fund Peer Groups began in 1996 because 1996-2005 was the first ten-year period in the dataset with at least 30 funds. Returns for Gateway were available beginning in 1980. Therefore, my comparison of Gateway to the Merkin BLMIS Accounts begins in October 1990, when returns begin for the Merkin BLMIS Accounts.

Figure 27
Sharpe and Sortino Ratios for Gateway
v. Merkin BLMIS Accounts (June 1990 – November 2008)²⁹²



²⁹² Sources include StorQM Customer Statements, Settled Cash table, and Morningstar Direct Database.

Figure 28
Number of Positive and Negative Months for Gateway
v. Merkin BLMIS Accounts (June 1990 – November 2008)²⁹³

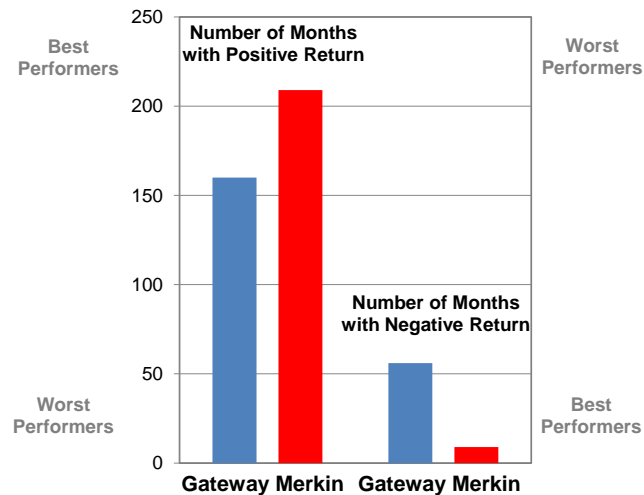
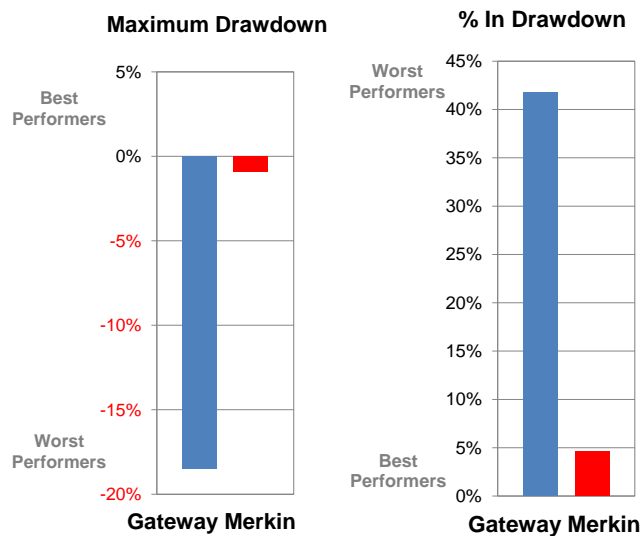


Figure 29
Maximum Drawdown and Percent of Months in Drawdown for
Gateway v. Merkin BLMIS Accounts (June 1990 – November 2008)²⁹⁴



²⁹³ Sources include StorQM Customer Statements, Settled Cash table, and Morningstar Direct Database.

²⁹⁴ Sources include StorQM Customer Statements, Settled Cash table, and Morningstar Direct Database.

280. As shown in the figures above, the Merkin BLMIS Accounts outperformed Gateway across all metrics. (*See also* **Schedule 45**).

(5) Mutual Fund Peer Group Conclusion

281. The analyses above show that the Merkin BLMIS Accounts outperformed, and often by a significant amount, the Mutual Fund Peer Group, across every performance metric, for every rolling period. Furthermore, the Merkin BLMIS Accounts also outperformed Gateway, a mutual fund implementing an SSC strategy, across every performance metric.

c) Elite Investment Advisors

282. In addition to the above analyses, I evaluated the performance of the Merkin BLMIS Accounts in the context of seven distinguished or “elite” investment advisors (the “Elite Investment Advisors”) to account for and analyze the notion that Madoff’s performance could be explained by his “genius” or “elite” skills and abilities. The Elite Investment Advisors, and the funds they manage, serve strictly as examples of possible performance benchmarks, and are: Warren Buffet (via Berkshire Hathaway, Inc.- Class A), George Soros (via Quantum Fund N.V. – A Shares), Jim Simons (via Renaissance Institutional Equities Fund, LLC – Series BB), John Paulson (via Paulson Partners Enhanced L.P.), Bruce Kovner (via GAMut Investments Inc.), D.E. Shaw (via Oculus International Fund), and Israel Englander (via Millennium International, Ltd.).²⁹⁵

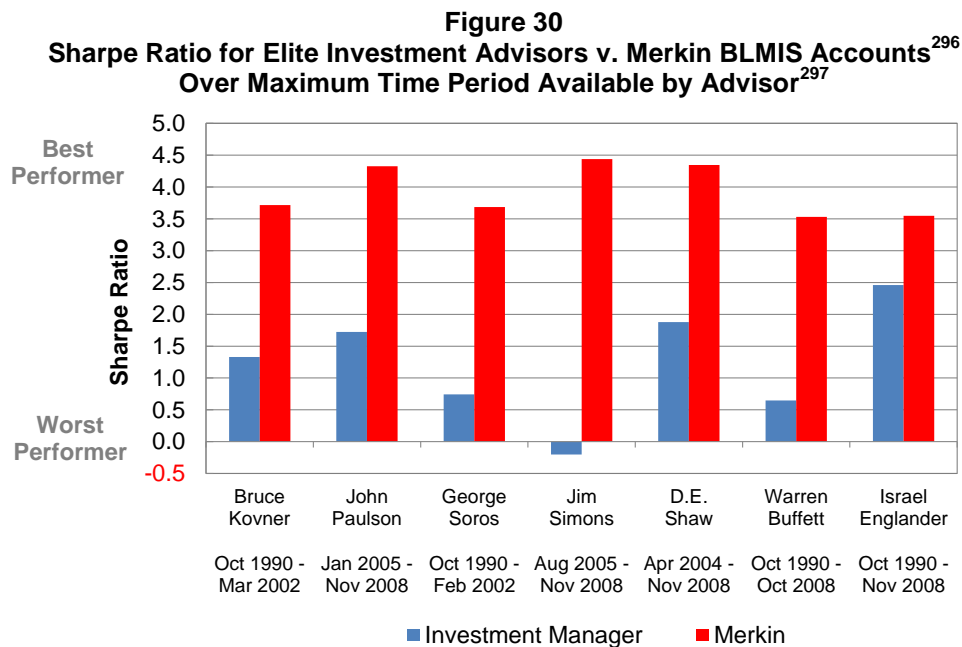
283. I assessed the Sharpe Ratio, Sortino Ratio, percentage of months with negative and positive returns, maximum drawdown, and number of months in drawdown for the Elite Investment Advisors over the period during which data was available for each Elite Investment Advisor. However, the risk-adjusted performance of the Merkin BLMIS

²⁹⁵ Merkin specifically noted Paul Singer, Israel Englander and Steve Cohen as investment advisors whose performance he considered comparable to, or better than, Madoff’s reported performance. *Wiederhorn v. Merkin*, Hearing Transcript 146:1-11, December 3, 2009. I included Paul Singer in my analysis. I also considered including Steven Cohen (via SAC Capital Advisors) and Paul Singer (via Elliot Management Corporation) in my analysis, but ultimately did not because information on funds managed by these advisors was not publicly available.

Accounts dominates these Elite Investment Advisors with respect to every considered performance metric.

(1) Sharpe and Sortino Ratios

284. First, I calculated the Sharpe and Sortino Ratios for the Elite Investment Advisors. As discussed above, these metrics are used to evaluate investment advisor performance on a risk-adjusted basis. As shown in Figure 30, the Sharpe Ratio for the Merkin BLMIS Accounts was higher than the Sharpe Ratio of any of the Elite Investment Advisors.



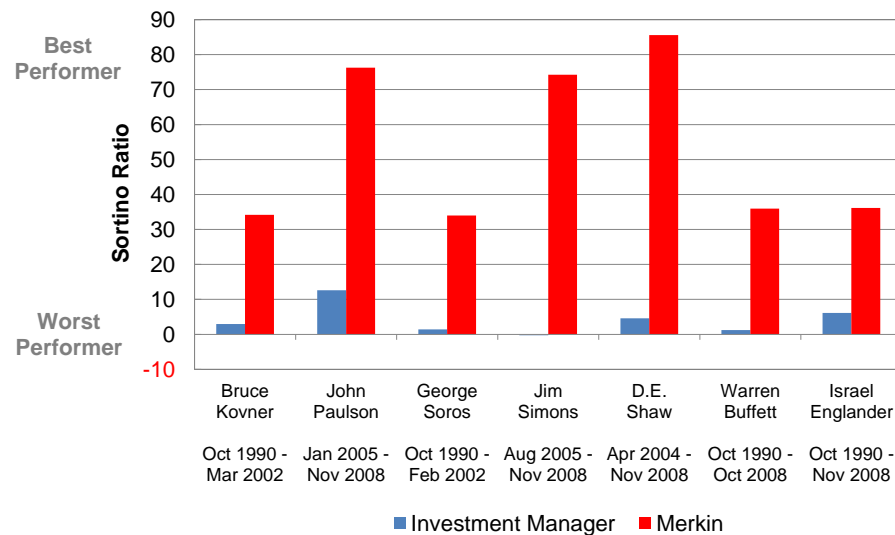
285. Similarly, as shown in Figure 31, the Sortino Ratio for the Merkin BLMIS Accounts far

²⁹⁶ Sources include StorQM Customer Statements, Customer Ledgers, Settled Cash table, BarclayHedge Database, Federal Reserve FRB H.15 Release, Bloomberg market data, Morningstar Direct Database. One fund was selected for each investment advisor based on AUM and availability of data.

²⁹⁷ The time periods for each advisor are different because they reflect the time periods for which data was available for each advisor. There are two reasons the time periods are not the same for every investment advisor. First, the investment advisors may have started their funds at different times. Second, the investment advisors may have only reported data to BarclayHedge in the time period indicated, regardless of whether they were operating a fund or not (i.e., they may have been operating a fund, but chose not to report their returns to BarclayHedge). Data for Warren Buffett is not based on BarclayHedge; it is based on the publicly-traded price of Berkshire Hathaway, Inc.- Class A common stock.

exceeded the Sortino Ratio of every other Elite Investment Advisor.

Figure 31
Sortino Ratio for Elite Investment Advisors v. Merkin BLMIS Accounts
Over Maximum Time Period Available by Manager



286. Again, the Merkin BLMIS Accounts are an outlier in the risk-adjusted performance metrics, with Sharpe Ratio and Sortino Ratio far exceeding those of every other Elite Investment Advisor. Merkin could have run this analysis contemporaneously with the Defendant Funds' investment with BLMIS and seen these results.

(2) Percentage of Months with Positive/Negative Returns

287. Next, I calculated the percentage of months with positive returns and the percentage of months with negative returns for the Merkin BLMIS Accounts and for the Elite Investment Advisors. As shown in Figure 32, the Merkin BLMIS Accounts also posted far greater percentages of months with positive returns and far fewer negative months than the Elite Investment Advisors.

Figure 32
Percentage of Positive and Negative Months for Elite Investment Advisors v.
Merkin BLMIS Accounts²⁹⁸
Over Maximum Time Period Available by Advisor

Elite Investment Advisor	% of Positive Months		% of Negative Months	
	Advisor	Merkin	Advisor	Merkin
Bruce Kovner (Oct 1990 - Mar 2002)	69%	96%	31%	4%
John Paulson (Jan 2005 - Nov 2008)	72%	98%	28%	2%
George Soros (Oct 1990 - Feb 2002)	66%	96%	34%	4%
Jim Simons (Aug 2005 - Nov 2008)	65%	98%	35%	3%
D.E. Shaw (Apr 2004 - Nov 2008)	70%	98%	30%	2%
Warren Buffett (Oct 1990 - Oct 2008)	62%	96%	38%	4%
Israel Englander (Oct 1990 - Nov 2008)	89%	96%	11%	4%

288. The Merkin BLMIS Accounts had more months with positive returns and fewer months with negative returns than every Elite Investment Advisor. (*See also Schedule 46 and Schedule 47.*)

(3) Drawdown

289. Finally, I calculated the maximum drawdown and the percent of months in drawdown for the Merkin BLMIS Accounts and for the Elite Investment Advisors. As discussed above, when calculated on a monthly basis, a drawdown occurs when a portfolio experiences a loss in the current month that brings the portfolio below its previous high. Maximum drawdown is the largest drop between peak to trough in the period. Percent of months in drawdown is the percent of months in which the current portfolio is below the previous high.

²⁹⁸ The number of positive and negative months for the Elite Investment Advisors are shown as a percentage of total months given that the time periods differ for each advisor.

Figure 33
Drawdown Metrics for Elite Investment Advisors v. Merkin BLMIS Accounts²⁹⁹
Over Maximum Time Period Available by Manager

Elite Investment Advisor	Maximum Drawdown		Months in Drawdown	
	Advisor	Merkin	Advisor	Merkin
Bruce Kovner (Oct 1990 - Mar 2002)	-10.8%	-0.9%	51%	4%
John Paulson (Jan 2005 - Nov 2008)	-3.4%	-0.2%	40%	2%
George Soros (Oct 1990 - Feb 2002)	-29.6%	-0.9%	62%	4%
Jim Simons (Aug 2005 - Nov 2008)	-21.3%	-0.2%	55%	3%
D.E. Shaw (Apr 2004 - Nov 2008)	-7.6%	-0.2%	43%	2%
Warren Buffett (Oct 1990 - Oct 2008)	-43.8%	-0.9%	73%	5%
Israel Englander (Oct 1990 - Nov 2008)	-7.2%	-0.9%	18%	5%

290. As shown in Figure 33, the Merkin BLMIS Accounts outperformed every Elite Investment Advisor in both maximum drawdown and percent of months in drawdown. (See also **Schedule 48** and **Schedule 49**.)

(4) Elite Investment Advisors Conclusion

291. The analyses above show that the Merkin BLMIS Accounts outperformed, and often by a significant amount, every Elite Investment Advisor, across every performance metric.

d) Market Indices

292. In addition to comparing returns against peers and other investment advisors, performance-related due diligence consistent with industry customs and practices includes comparing returns against well-known indices. I evaluated the performance of the Merkin BLMIS Accounts in the context of equity and bond market indices. Specifically, I used the following indices: (i) Barclays Capital U.S. Aggregate Bond Index; (ii) S&P 100 Index; (iii) S&P 500 Index; (iv) HFRI EH: Equity Market Neutral Index; (v) HFRX EH: Equity Market Neutral Index; and (vi) Dow Jones Credit Suisse

²⁹⁹ The number of positive and negative months for the Elite Investment Advisors are shown as a percentage of total months given that the date periods differ for each advisor.

Hedge Fund Index.³⁰⁰ While there are certainly examples of elite investment advisors and highly-regarded funds that have produced risk-adjusted returns higher than the market over specific periods of time, it is virtually impossible that any given investor or fund could consistently generate risk-adjusted returns more than double market indices over approximately two decades.³⁰¹ The metrics for the Merkin BLMIS Accounts calculated over about two decades dwarfed those for well-known equity, bond market and hedge fund indices. (*See also Schedule 52 to Schedule 57.*)

293. Comparing BLMIS returns to market indices is an analysis that is reflected in materials collected and maintained by Merkin.³⁰² In the previously discussed document titled “Comparing Promeo [sic] Manager Series B and the S&P500” there are various analyses comparing monthly returns, cumulative returns, drawdowns, and number of negative months.³⁰³ The analyses include a histogram of monthly returns, differences in monthly returns, a scatterdiagram of monthly returns, and various other comparisons between BLMIS returns and returns from the S&P 500. For example, Figure 34, an excerpt from the document, shows how BLMIS consistently outperformed the market over an extended period of time between 1989 and 1995.³⁰⁴

³⁰⁰ This range of indices casts a wide net for performance comparisons.

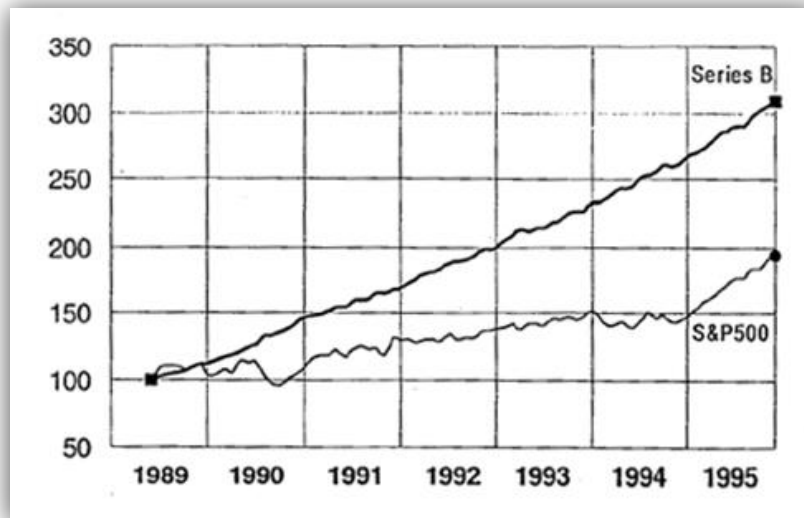
³⁰¹ See, e.g., Vikas Agarwal & Narayan Y. Naik, *Multi-Period Performance Persistence Analysis of Hedge Funds*, Journal of Financial and Quantitative Analysis 327-42 (Issue 35, 2000); Ardian Harri & B. Wade Brorsen, *Performance Persistence and the Source of Returns for Hedge Funds*, Applied Financial Economics (2002), <http://ssrn.com/abstract=318379> or doi:10.2139/ssrn.318379; Samuel Manser & Markus M. Schmid, *The Performance Persistence of Equity Long/Short Hedge Funds* 51-69, Journal of Derivatives & Hedge Funds (Issue 15, 2009).

³⁰² *N.Y.U. v. Ariel Fund Ltd. et al.*, Merkin Dep. 298:5-300:24, February 9, 2009.

³⁰³ See *supra* Section VI.B.1; Trustee Ex. 363 (Comparing Promeo Manager Series B and the S&P500) (GCC-P 0393213-226).

³⁰⁴ As discussed in Section VI.B.1, the analysis compares returns the S&P 500 with returns for Primeo Manager Series B. Because Primeo was a BLMIS feeder fund, these returns are representative of an investment with BLMIS during this time period.

Figure 34
Comparison of BLMIS v. S&P 500³⁰⁵



294. Another table from the same document shows how Madoff was consistently up even when the S&P 500 was down in a particular month. This table, shown in Figure 35 as it appears in the document, specifically indicates that when the return on the S&P 500 was down, Madoff's return was up 89% of the time, with an average monthly return of 1.09%:

Figure 35
Comparison of Madoff v. S&P 500³⁰⁶

Months when:	Mgr B: Average return	Mgr B: % of Months Up
S&P500 closed up	+1.67%	98%
S&P500 closed down	+1.09%	89%

295. The comparison between Madoff and the S&P 500 contained in this document further

³⁰⁵ Trustee Ex. 363 (Comparing Promeo Manager Series B and the S&P500) (GCC-P 0393213-226).

³⁰⁶ Trustee Ex. 363 (Comparing Promeo Manager Series B and the S&P500) (GCC-P 0393213-226).

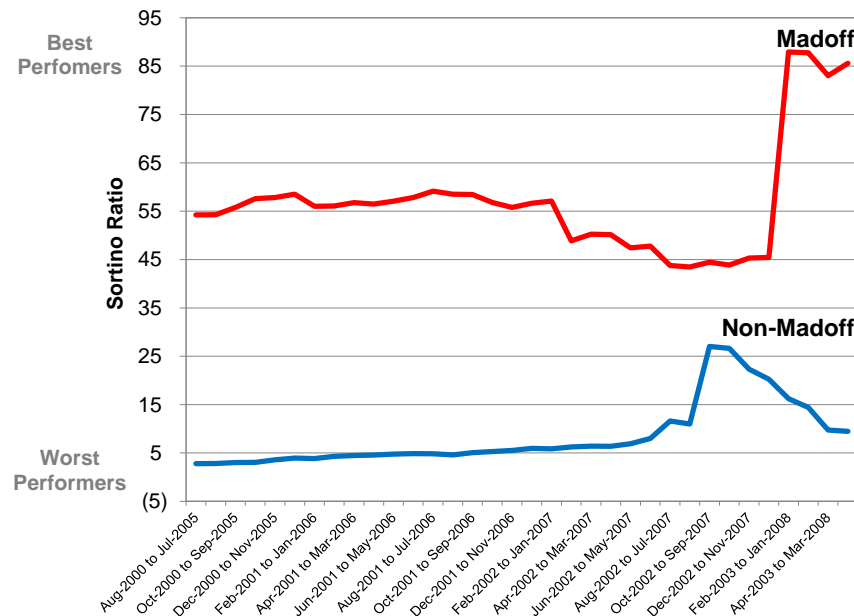
illustrates how virtually impossible it would have been to generate the returns reported by Madoff. The cumulative returns, the performance when the S&P 500 was down, and the ability to generate positive returns irrespective of what the S&P was doing, *see* Section VI.B.1, all indicated that the returns generated by Madoff were inconsistent with the split strike conversion strategy. This should have prompted additional quantitative due diligence on the purported execution of the strategy, including performance attribution, reverse engineering and alpha analysis. As discussed in Sections VI.D.4, VI.B.2 and VI.B.1, due diligence in these areas would have revealed significant red flags where the only reasonable explanation was fraud.

e) Ariel's Non-Madoff Returns

296. In addition to comparing an investment advisor's performance to that of its peers, it is also consistent with industry customs and practices for a Fund Manager to review the investments within his or her portfolio. The purpose of analyzing investments in one's own portfolio is to identify managers that are performing well on both an absolute and risk-adjusted basis, and to consider whether changes to the allocation of assets may be appropriate for the portfolio. As such, I compared Ariel's Madoff returns with Ariel's non-Madoff returns, information that would be available without even considering publicly available data. I assessed the peer analysis metrics on a five-year rolling basis over the period August 2000 through November 2008.³⁰⁷ Ariel's Madoff returns outperformed Ariel's non-Madoff returns across all metrics across all time periods. (*See Schedule 58 to Schedule 62.*) For example, as shown in Figure 36, the Sortino Ratio for Merkin's BLMIS account for Ariel was higher than the Sortino Ratio for Ariel's non-Madoff investments for every period for which data was analyzed.

³⁰⁷ Ten years of data was not available so I used five-year rolling periods.

Figure 36
Sortino Ratio for Ariel's BLMIS Account v. Ariel's non-Madoff Investments³⁰⁸
Rolling 5-Year Periods Ending July 2005- August 2008



297. Ariel's Madoff returns outperformed Ariel's non-Madoff returns across all metrics across all time periods. (See **Schedule 58** to **Schedule 62.**) Given that BLMIS purportedly implemented the Madoff SSC strategy across multiple accounts, the results from this analysis would apply to the other Merkin BLMIS Accounts as well.

f) Conclusion

298. The analyses above show that across all six performance metrics, all peer groups, and for all time periods considered, BLMIS outperformed its peers to a degree of statistical improbability, if not impossibility. It is highly unlikely for an investment advisor to outperform, and often by a significant amount, every peer group, across these performance metrics, across lengthy periods of time. This purported performance was indicia of fraud and a red flag that Madoff was not executing the Madoff SSC strategy.

³⁰⁸ StorQM Customer Statements; Settled Cash table; Federal Reserve FRB: H.15 Release; Ariel Historical Net Asset Value Summary (BS00025342 at 342.

Furthermore, these results should have prompted additional quantitative due diligence on the purported execution of the strategy, including performance attribution, reverse engineering and alpha analysis. As discussed in Sections VI.D.4, VI.B.2 and VI.B.1, due diligence in these areas would have revealed significant red flags where the only reasonable explanation was fraud.

2. Performance in Times of Market Stress

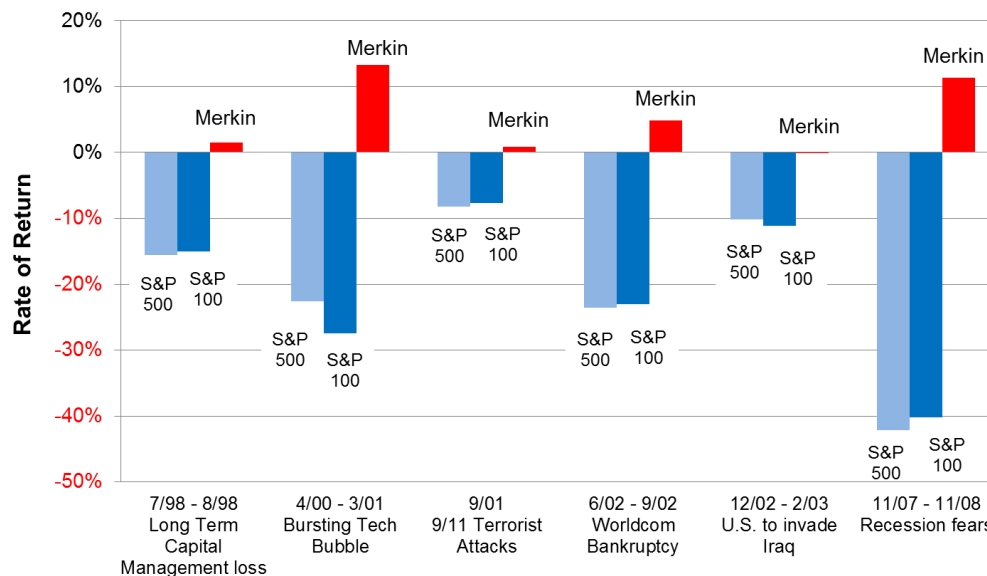
299. Another red flag that due diligence would have uncovered is Madoff's anomalous performance during times of market stress.³⁰⁹

a) Market Stress Based on Contemporaneous Events

300. I identified periods of market stress, based primarily on events contemporaneous with the Defendant Funds' investments with BLMIS, and compared the returns of the S&P 100 and S&P 500 with the returns reflected on statements for the Merkin BLMIS Accounts. In each separate period, where the market exhibited significant stress, and the S&P 100 and S&P 500 both fell substantially, the returns for the Merkin BLMIS Accounts were inexplicably positive. Figure 37 highlights some of the periods of market stress where the returns for the Merkin BLMIS Accounts did not track the market:

³⁰⁹ The Kansas City Federal Reserve defines financial stress as "an interruption to the normal functioning of financial markets." Craig S. Hakkio & William R. Keeton, *Financial Stress: What Is It, How Can It Be Measured, and Why Does It Matter?*, Federal Reserve Bank of Kansas City (undated). I am using market stress consistent with this definition.

Figure 37
Merkin BLMIS Account Comparison to S&P 100 and S&P 500 During Times of Market Stress³¹⁰



301. Figure 37 illustrates six examples where Madoff outperformed the market in times of stress. For example, during the Tech Bubble Burst of April 2000 through March 2001, Merkin's BLMIS Accounts purportedly generated returns of 13.3% while the S&P 100 lost 27.4%.³¹¹ Similarly, the reported returns for Merkin's BLMIS Accounts from November 2007 through November 2008 were 11.4%, while the S&P 100 fell 40.2% amid wide-spread fear of a financial crisis and extended recession.³¹² Madoff emerged unscathed from at least three additional periods of market stress, including the terrorist attacks on the U.S. in September 2001, the aftermath of WorldCom's filing for Chapter

³¹⁰ In the time periods shown, a month reflects the full month. For example, for the 9/11 Terrorist Attacks, the period of September 1, 2001 through September 30, 2001 was analyzed. Sources include StorQM Customer Statements, Settled Cash table and Bloomberg market data. I included the S&P 500 in this analysis because Merkin compared his funds to the S&P 500, and because Merkin collected a document that compared Madoff to the S&P 500. Gabriel Capital Group Marketing Presentation, October 2008 (BS00041099 at 1105); Trustee Ex. 363 (Comparing Promeo Manager Series B and the S&P500) (GCC-P 0393213-218).

³¹¹ StorQM Customer Statements, Settled Cash, Bloomberg market data.

³¹² StorQM Customer Statements, Settled Cash, Bloomberg market data.

11 bankruptcy protection during the summer of 2002 (to date had been the largest bankruptcy ever filed), and the U.S. invasion of Iraq during the winter of 2002-2003.³¹³ The S&P 500 performed similarly to the S&P 100 during these periods.

302. The fact that BLMIS's returns were impervious to periods of tremendous market stress that resulted in significant losses to the S&P 100 and S&P 500 should have alerted Merkin that Madoff was not executing the stated strategy. These consistent returns were indicia of fraud and should have prompted additional quantitative due diligence on the purported execution of the strategy, including performance attribution, reverse engineering and alpha analysis. As discussed in Sections VI.D.4, VI.B.2 and VI.B.1, due diligence in these areas would have revealed significant red flags where the only reasonable explanation was fraud.

b) Market Stress 2000-2002

303. The end of 2002 saw the end of a three-year period during which the stock market fell dramatically while the Merkin BLMIS Accounts showed returns of over 45%.³¹⁴ Between 1999 and 2002 the S&P 100 fell 43.9%, while the Merkin BLMIS Accounts showed returns of 45.9%. The returns for the Merkin BLMIS Accounts and the returns for the S&P 100 went in precisely the opposite direction over a three-year period, creating an 89.8 percentage point variance (the difference between up 45.9% and down 43.9%). That is, if an investor held \$100 in the Merkin BLMIS Accounts in December 1999, that \$100 would have become approximately \$146 by December 2002 (an increase

³¹³ StorQM Customer Statements, Settled Cash, Bloomberg market data. *See also* Harrington Dep. 146:17-147:2, October 1, 2013.

³¹⁴ When performing comparisons of returns between and among funds and indices, it is industry custom and practice to use full year or full month returns, regardless of whether a fund's assets are invested in the market, in treasuries, or in illiquid securities over the relevant time period. Investors are most interested in total returns, which would include periods "in the market" as well as "out of the market." Comparisons of returns over long periods of time between BLMIS and other funds or indices should not differentiate between when BLMIS was "in the market" versus "out of the market," as that is not consistent with industry customs and practices. Some basket-based analyses in this report, such as alpha analysis and scenario analysis pertain to just those periods that Madoff was "in the market."

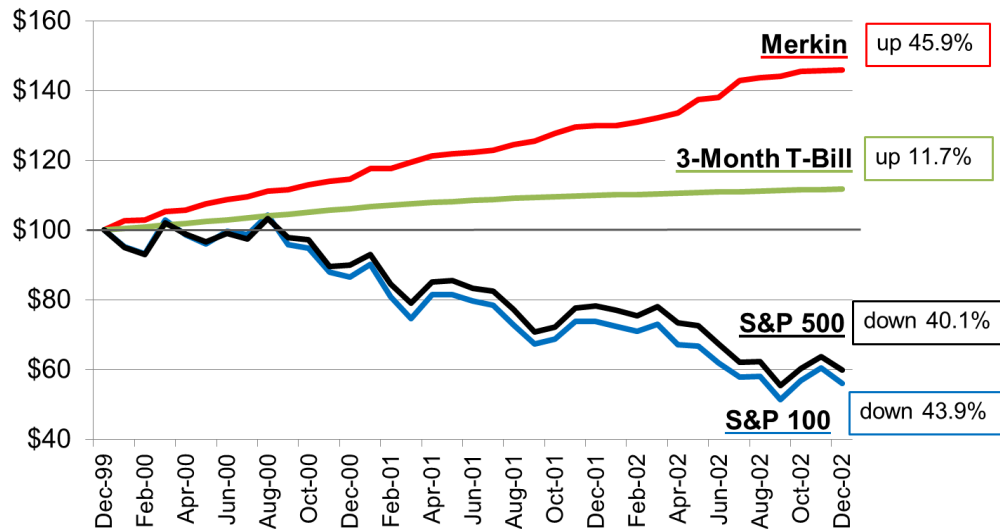
of 45.9%). Similarly, if an investor held \$100 in the S&P 100 in December 1999, that \$100 would have become approximately \$56 by December 2002 (a decrease of 43.9%).

304. Documents in Merkin's possession show a similar a comparison of the Gabriel fund (which included BLMIS account returns) against the S&P 500 from 1991 through 2006,³¹⁵ which shows that between 1999 and 2002 the S&P 500 fell 40.1%.
305. As Figure 38 below shows, the end of 2002 saw the end of a three-year period during which the S&P 100 fell by 43.9% and the S&P 500 fell by 40.1%, as compared to returns for the Merkin BLMIS Accounts of 45.9%. The figure also includes cumulative returns for Treasury Bills, a default risk-free investment.³¹⁶

³¹⁵ BS00527159.

³¹⁶ Trustee Ex. 353 at 8 (Gabriel Capital Group presentation, April 2008); Merkin Dep. 99:4-25, February 24, 2015. While the Merkin BLMIS Accounts were purportedly invested in treasuries when not invested in the market, contributions from treasuries would not account for the returns in the Merkin BLMIS Accounts being up almost 46 percent with the market down over 40 percent.

Figure 38
Cumulative Annual Returns (Indexed at December 31, 1999=\$100)³¹⁷
Merkin BLMIS Accounts v. S&P 500, S&P 100 and 3-Month Treasury Bill
Performance of a Theoretical \$100 Investment



306. Figure 38 illustrates the cumulative declines in the S&P 100 and S&P 500 and a moderate cumulative increase in Treasury Bills for the three-year period ending in December 2002, compared to the cumulative increases in the Merkin BLMIS Accounts.
307. This consistent, inexplicable over-performance with respect to the S&P 100, the S&P 500 and Treasury Bills, over a three-year period, where global economic markets were down substantially, was indicia of fraud. This should have alerted Merkin that Madoff was not executing the Madoff SSC strategy to achieve his consistent returns and should have prompted additional due diligence. The Madoff SSC strategy is exposed to market

³¹⁷ Sources include StorQM Customer Statement, Settled Cash table (weighted average across Merkin accounts), Bloomberg market data, Federal Reserve FRB H:15 Release. Monthly returns for Merkin are calculated using the Modified Dietz method. The Modified Dietz method “[c]alculates a capital-weighted rate of return by taking the exact length of time that cash flow is present in the portfolio. The major advantage of this method is that it does not require daily calculation of the portfolio value.” Noël & and Veronique LeSourd, PORTFOLIO THEORY AND PERFORMANCE ANALYSIS 40-41 (2003).

movements within the strike range,³¹⁸ and in such a long, protracted downward move of the market, it would be statistically improbable to achieve the result he achieved.³¹⁹

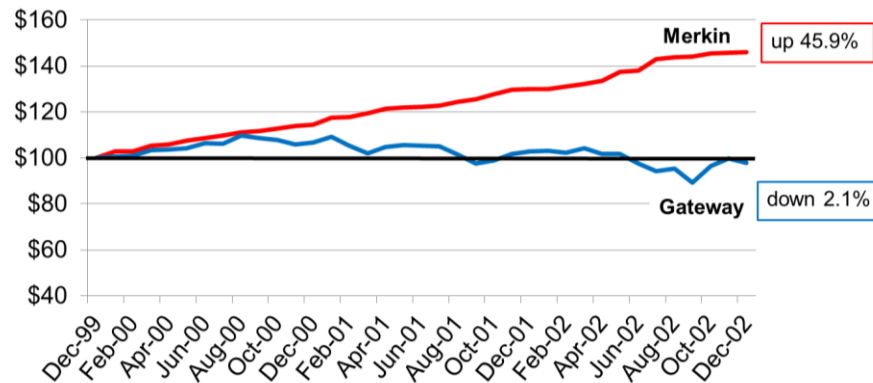
308. If the market experiences prolonged movement in either direction, it should have been reflected in the returns of the Merkin BLMIS Accounts. The expected performance of the Madoff SSC strategy in the face of a 40-44% drop in market values can be observed through Gateway, a mutual fund that employed an SSC strategy similar in nature to the Madoff SSC strategy. As Figure 39 illustrates, Gateway's performance over this time period was nowhere near the performance reflected in the statements for the Merkin BLMIS Accounts and, in fact, was negative:³²⁰

³¹⁸ The strike range is the range between the put strike price and the call strike price. If the S&P 100 Index moves up and down within this range (i.e., the collar) the Madoff SSC strategy should perform like the S&P 100 Index and the options should have no impact on the performance of the Madoff SSC strategy.

³¹⁹ As an example, I performed a linear regression of simulated SSC returns on the S&P 100 from 1990 to 2000. The beta of this regression, or the investments' dependence on market movement, is calculated to be 30%. This means that subject to error, and manager ability, the strategy is expected to be down 30% as much as the market's decline. The standard error of the regression is too small to allow for such a radical divergence as the stated results.

³²⁰ As compared to the analyses above, where the S&P 100 and S&P 500 explained less than 30% and 5%, respectively, of the change in returns for the Merkin BLMIS Accounts, the S&P 100 and S&P 500 explained 83% and 84%, respectively, of the change in Gateway's returns. This result is expected, as Gateway's SSC strategy was based on using stocks in the S&P 500 Index, and therefore should be more correlated to the return of the S&P 500.

Figure 39
Cumulative Monthly Returns (Indexed at December 31, 1999 = \$100)³²¹
Merkin BLMIS Accounts v. Gateway Based on a Theoretical \$100 Investment



309. The return for the Merkin BLMIS Accounts over this three-year period is also a red flag because of its obvious and stark lack of correlation with the S&P 100. In a strategy that was expected to be correlated to the S&P 100, results like these are indicia of fraud and a red flag that Madoff was not implementing the strategy he said he was implementing based on the returns he reported. Industry customs and practices would be to perform additional quantitative due diligence on the purported execution of the strategy, including performance attribution, reverse engineering and alpha analysis. As discussed in Sections VI.D.4, VI.B.2 and VI.B.1, due diligence in these areas would have revealed significant red flags where the only reasonable explanation was fraud.

3. Correlation Analysis

310. As discussed above in Section VI.B.2 I conducted reverse engineering to establish what could have reasonably been expected from the Madoff SSC strategy. The analysis incorporated S&P 100 Index prices and the exchange-traded put and call options.³²² The

³²¹ Sources include StorQM Customer Statements, Settled Cash table, and Morningstar Direct Database.

³²² BLMIS purportedly purchased baskets of no less than 35 stocks in the S&P 100 Index; baskets which Madoff claimed were on average 95% correlated with the S&P 100. Trustee Ex. 360 (Trading Authorization Directive,

analysis further assumed that the put strike was 1% out-of-the-money and that the call strike was 1% out-of-the-money.³²³

311. When the value of Madoff's purported basket of 35 stocks was between the put and call strike prices there should have been a strong correlation between Madoff's returns and the S&P 100. One would expect *a priori* to see a strong correlation between Madoff's returns and the S&P 100 when the value of Madoff's basket of 35 stocks was between the put and call strike prices. Because of the manner in which the Madoff SSC strategy was implemented, the returns should move in the same direction as the underlying stock that is bought, or, when using baskets, the S&P 100 Index. In this way the Madoff SSC strategy should produce returns that are correlated (i.e., related from a statistical perspective) to the returns of the underlying stock or the S&P 100 Index.
312. Per the reverse engineering analysis, BLMIS's returns should have displayed a correlation coefficient of more than 0.57 from December 1991 through November 2008. However, the returns for the Merkin BLMIS Accounts displayed a correlation coefficient of 0.32 during that period. Had this reverse engineering of the Madoff SSC strategy been performed contemporaneously, it would have been clear that BLMIS's correlation with the S&P 100 was less than the strategy would predict.³²⁴ (See **Schedule 63** for an indication of expected versus actual correlation for cumulative annual periods beginning

October 22, 2002) (GCC-SEC 0027370-381 at 380); UBPAMMERKIN00001711 at 711; Trustee Ex. 363 (GCC-P 0393148 and 3211). Accordingly, the correlation coefficient derived from reverse engineering of the Madoff SSC strategy that incorporated a basket of the top 40 stocks rather than the entire S&P 100 would be substantially similar.

³²³ According to the Trading Authorization Directive, BLMIS would buy put options no more than 3% out-of-the-money, with no limitation on how far out-of-the-money the call options could be. Trustee Ex. 360 (Trading Authorization Directive, October 22, 2002) (GCC-SEC 0027370-381 at 381). As reflected on the customer statements for the Merkin BLMIS Accounts, BLMIS purportedly bought and sold put and call options both less than 3% out-of-the-money. On average puts were purchased 1% out-of-the-money, while calls were sold 1.2% out-of-the-money.

³²⁴ Given how little Madoff's returns were correlated to the S&P 100, I am comfortable that my conclusion is robust to any other set of reasonable assumptions (e.g., modeling Madoff's baskets to be 35 stocks, incorporating different assumptions regarding the "out-of-the-moneyness" of the options purportedly transacted, assessing different time periods, etc.).

in 1992 and continuing through 2008.)

313. The returns for the Merkin BLMIS Accounts were entirely unrelated to what happened with the S&P 100 over the Defendant Funds' 18 year investment history with BLMIS, contradictory to the purported strategy.³²⁵ Regardless of whether the S&P 100 was up (130 months) or down (86 months), the returns for the Merkin BLMIS Accounts were consistently up. Figure 40 illustrates this stark difference between the reported monthly returns for the life of the Merkin BLMIS Accounts and the S&P 100 returns.

Figure 40
Comparison of the Merkin BLMIS Accounts v. S&P 100 – Monthly Returns³²⁶
October 1990 to November 2008

	Number of Months	Merkin Up	Merkin Down
S&P 100 Up	131	128	3
S&P 100 Down	87	81	6

314. It should be noted that for two of the three months in which the Merkin BLMIS Accounts were down while the S&P 100 was up, BLMIS was purportedly out of the market during the days in which the market gained. The other month in which the Merkin BLMIS Accounts were down while the S&P 100 was up (March 1991) was the result of a speculative put option transaction (an OEX put option was bought in March and expired worthless in April). (See Section VI.A.4.b).
315. The disconnect between the reported returns for the Merkin BLMIS Accounts and the S&P 100 is even more pronounced when comparing the basket returns for the Merkin BLMIS Accounts with the S&P 100 returns over the basket time period:

³²⁵ The S&P 100 was also flat during one month over Defendant Funds' 18 year investment period with BLMIS. I have categorized this month as an S&P 100 "up" month. The reported returns for the Merkin BLMIS Accounts were up during this month.

³²⁶ Sources include StorQM Customer Statements, Customer Ledgers, Settled Cash table and Bloomberg market data.

Figure 41
Comparison of Merkin BLMIS Accounts v. S&P 100 – Basket Returns³²⁷
December 1991 to November 2008

	Number of Baskets	Merkin Up	Merkin Down
S&P 100 Up	45	45	0
S&P 100 Down	38	36	2

316. This lack of correlation with the S&P 100 was indicia of fraud, a red flag that Madoff was not implementing the strategy he said he was implementing based on the returns he reported, and should have prompted additional quantitative due diligence on the purported execution of the strategy, including performance attribution, reverse engineering and alpha analysis. As discussed in Sections VI.D.4, VI.B.2 and VI.B.1, due diligence in these areas would have revealed significant red flags where the only reasonable explanation was fraud.

4. Performance Attribution

317. Performance attribution is an analysis that I performed (and is one that could have been performed based on the customer statements and trade confirmations received by customers such as the Defendant Funds).³²⁸ The purpose of this type of analysis is to identify the source of excess performance (relative to a benchmark) delivered by an investment advisor. Fund managers, in my experience, often conduct performance attribution analyses on a regular basis in order to both to monitor the returns and to fully understand whether the performance was achieved in a method consistent with the stated

³²⁷ Sources include StorQM Customer Statements, Customer Ledgers, Settled Cash table and Bloomberg market data.

³²⁸ Such analysis was performed on Madoff in 1991 for example, using monthly returns and a description of the split strike strategy. Thorp Dep. 52:13-19, May 22, 2012.

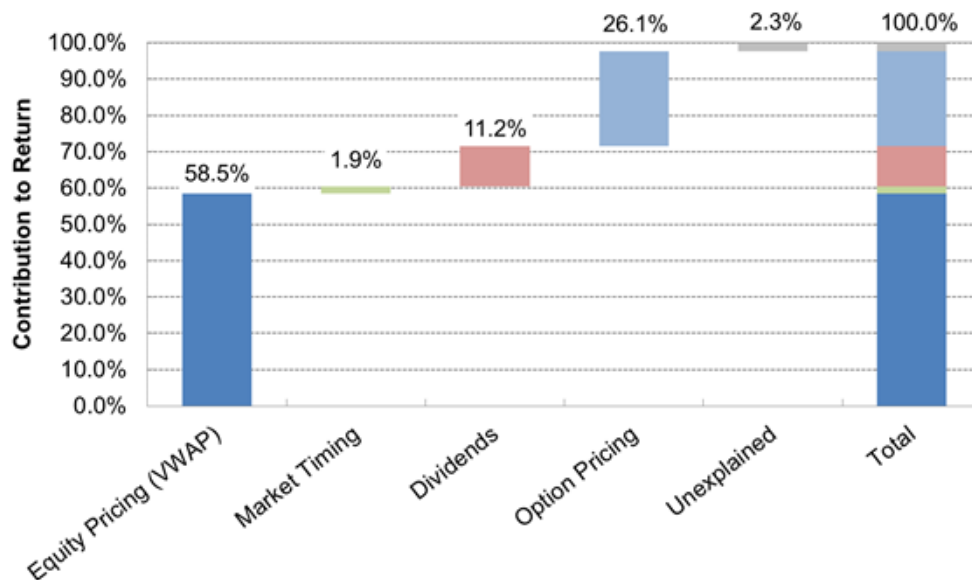
investment style(s).³²⁹

318. At the core of any investment strategy are the decisions made by the investment advisor. I performed performance attribution on the purported profits of the Merkin BLMIS Accounts to determine how the profits would have been generated, had they been actual profits. The performance attribution shown in Figure 42 allocates the sources of return for the purported profits of the Merkin BLMIS Accounts into five major categories for the years 2000 through 2008, including: equity pricing, market timing, dividends, option pricing, and a residual amount that is unexplained.³³⁰ (See **Schedule 66** for these allocations annually from 2000 through 2008.)

³²⁹ CFA Institute, *Alternative Investments, Risk Management, and the Application of Derivatives CFA Program Curriculum, Level III, Vol. 5*, 80-81 (2014). Another key reason for performance attribution due diligence is to detect any changes in investment style that are inconsistent with the stated trading strategy. See *supra* Section VI.A.2.d).

³³⁰ Equity pricing is based on trading acumen (trading above or below the average price); market timing is based on gains generated by determining when to enter and exit the market; dividends are based on gains made from holding stocks that paid dividends; option pricing is based on trading acumen (trading above or below the average price); and unexplained represents the returns that are not attributable to the other four categories.

Figure 42
Performance Attribution of Excess Returns 2000-2008³³¹
Contribution of Major Categories to Merkin BLMIS Account Profit



a) Equity Pricing (VWAP)

319. In order to track trade execution effectiveness, it is common practice for portfolio managers to compare their transaction price against the Volume Weighted Average Price (“VWAP”) for the respective stock. VWAP is a trading metric calculated by weighting each transaction price by the volume for the transaction.³³² While almost impossible, consistently buying below VWAP or selling above VWAP would result in substantial excess returns.

320. As Figure 42 illustrates, the single largest component of the purported returns, 58.5%, comes from the purported trade execution being above or below the VWAP.³³³ A

³³¹ Sources include StorQM Customer Statements, Customer Ledgers, Settled Cash table and Bloomberg market data. Excess Return is the return over and above the risk-free rate.

³³² VWAP data is easily obtainable from any Bloomberg terminal and was publicly accessible to Fund Managers like Merkin.

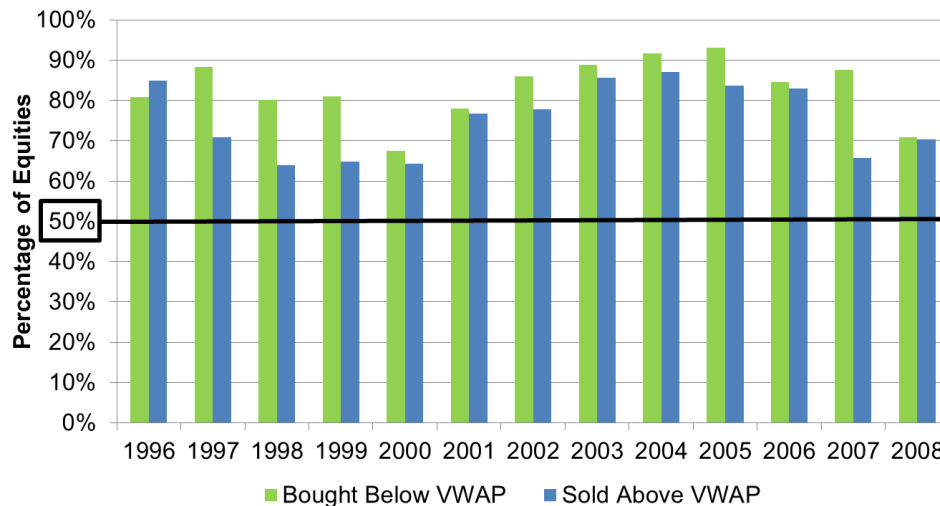
³³³ Merkin Dep. 207:12-15, February 24, 2015.

comparison of trading records for the Merkin BLMIS Accounts against VWAP for the respective stocks over the period January 1996 to November 2008, shows that 81.3% of purported buy transactions by share volume were executed below VWAP while 74.9% of purported sell transactions by share volume were executed above VWAP.³³⁴

321. Further, this analysis showed that, on average, BLMIS purportedly bought shares \$0.39 per share below VWAP, while purportedly selling shares \$0.30 per share above VWAP, which contributed to the significant purported gains created by trading above or below VWAP. These deviations from VWAP are significant in an industry where the industry norm is to target trade execution *at* VWAP (meaning that one would expect 50% of shares would be above VWAP and 50% would be below VWAP).
322. BLMIS's ability to purportedly buy below and sell above VWAP was not limited to a few transactions. Rather, 57.9% of the purported returns for the Merkin BLMIS Accounts were due to the consistent purchase and sale of stocks at most favorable prices. As Figure 43 illustrates, in some years, Madoff bought below VWAP and sold above VWAP more than 80% of the time. (*See also Schedule 69 and Schedule 70.*)

³³⁴ This analysis was based on the Settled Cash table, StorQM customer statements and market data from Bloomberg. Prior to September 2006, BLMIS did not explicitly identify commissions on customer statements. The trade confirmations state that the trade price includes a commission of \$.04 per share for equities. Accordingly, I have adjusted the reported share prices prior to 2006 to adjust for commissions. *See, e.g.*, Trade Confirmation for Ascot Partners LP (Trade Date March 22, 2006) (BS00013594 at 594).

Figure 43
Merkin BLMIS Accounts Percentage of Shares Bought Below or Sold Above VWAP³³⁵



323. Given how many shares BLMIS purportedly traded just on behalf of the Merkin BLMIS Accounts, the statistical probability of this happening is virtually 0%. Buying below VWAP and selling above VWAP with the same success as Madoff is comparable to flipping a coin more than 2 billion times and getting heads 70-90% of the time.³³⁶ It is reasonable to assume that the likelihood of any share purchased below VWAP on any given day is 50%. The likelihood of buying 1.4 billion shares below VWAP out of 1.6 billion shares between 1996 and 2008 follows a binomial distribution. The calculated probability for this outcome is effectively 0.0%. BLMIS's purported ability to buy and sell at these levels with such consistency was a significant red flag and the only reasonable explanation was fraud.

324. Looking at intraday prices of equities, on a minute-by-minute basis, helps explain why it

³³⁵ Sources include Settled Cash table and Bloomberg market data.

³³⁶ There were over 1.6 billion shares purportedly bought and over 1.5 billion shares purportedly sold in the Merkin BLMIS Accounts between 1996 and 2008. In total there were over 3 billion shares purportedly transacted.

is almost impossible to execute at these prices.³³⁷ Comparing data for the Merkin BLMIS Accounts for equities purportedly purchased at or near the daily low or at or near the daily high to intraday data illustrates that BLMIS could not have made these trades.³³⁸ For example, on October 7, 2003, BLMIS purportedly purchased 672,450 shares of Exxon Mobil Corp., across three Merkin accounts, for \$37.75 per share.³³⁹ The low market price for the day was \$37.74 per share.³⁴⁰ Figure 44 illustrates the high and low price for Exxon Mobil Corporation, by minute, on October 7, 2003.

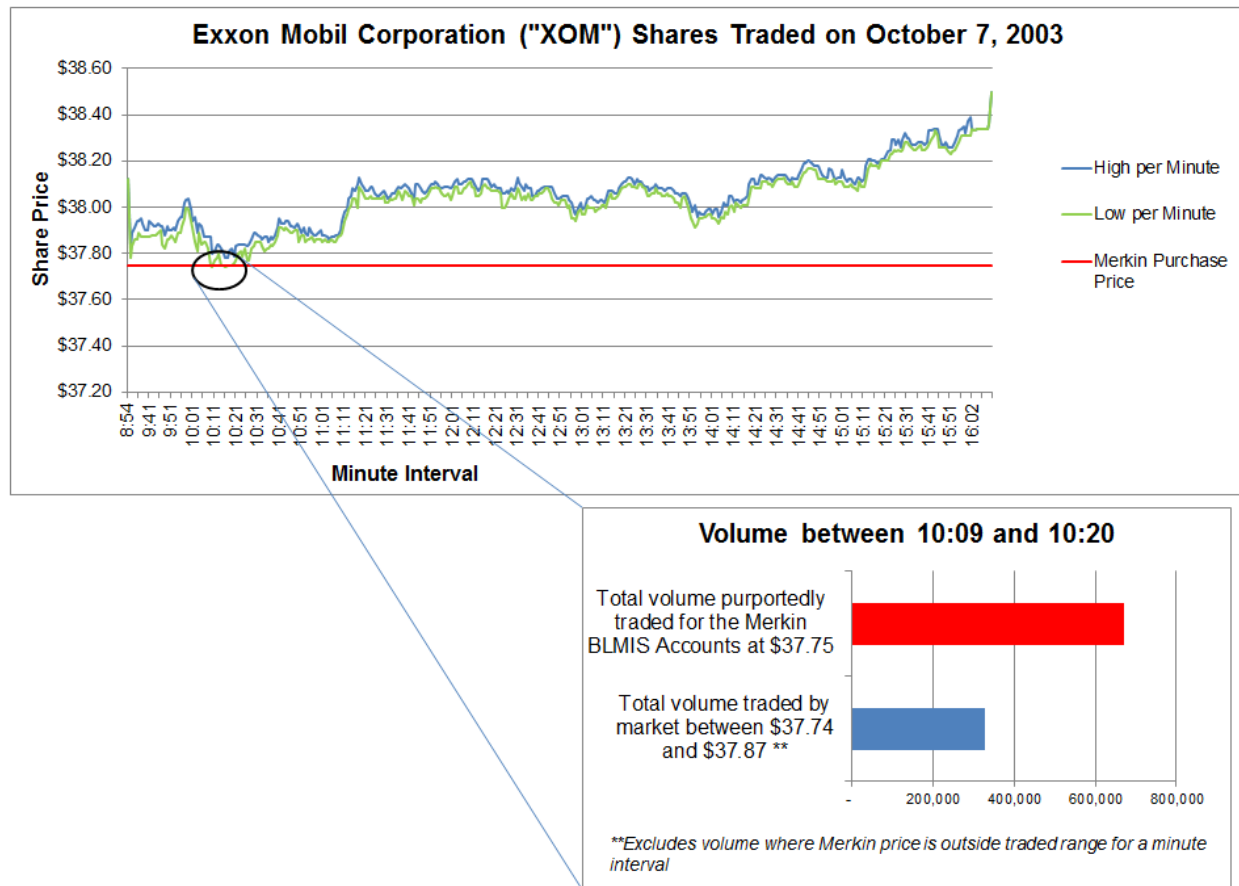
³³⁷ Sources include Tick Data market data.

³³⁸ This analysis is particularly informative because Madoff claimed at times to have executed large volumes of trades in smaller amounts throughout the day (sometimes called “time slicing.”). To the extent that Madoff was purportedly time slicing, time slicing is typically not a source of alpha, nor is it designed to generate alpha. It simply ensures that the trades are being executed at VWAP. It is a passive version of trading where the investor is satisfied to execute at VWAP because the investor is not buying above or selling below VWAP. The fact that Madoff’s execution is consistently better than VWAP is therefore inconsistent with the understanding that Madoff was time slicing. *See* UBPAMMERKIN00001711 at 1712; Merkin Dep. 201:12-203:1, February 24, 2015.

³³⁹ Share price is adjusted for commissions of \$0.04 per share. *See supra* Section VI.A.2.c)(1). Sources include Settled Cash table and Bloomberg market data.

³⁴⁰ Sources include Bloomberg market data.

Figure 44
Exxon Mobil Corporation (XOM) Share Price and Volume on October 7, 2003
Market vs. Merkin BLMIS Accounts³⁴¹

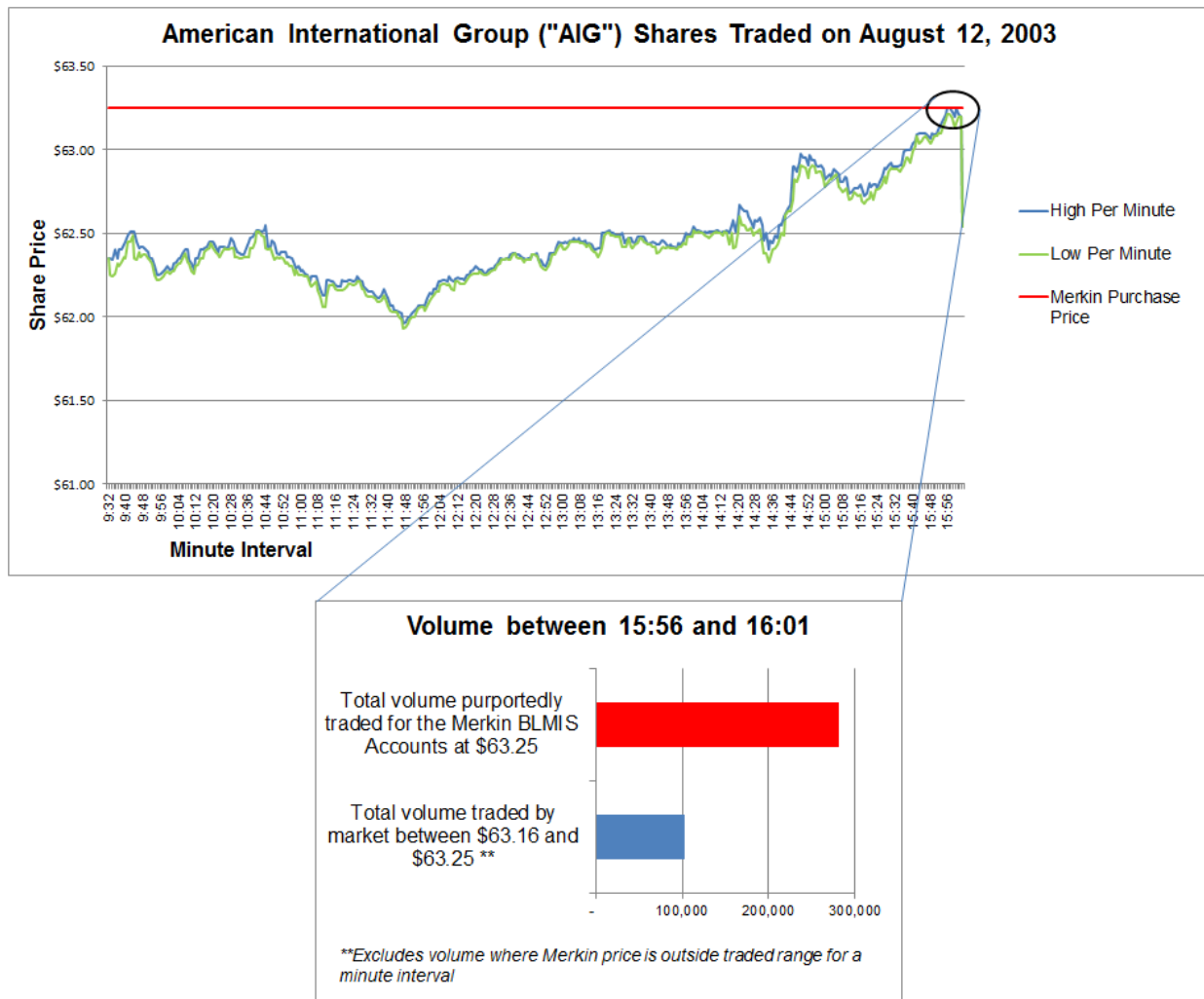


325. As shown in Figure 44 above, the only time period where the range of share prices included the purported Merkin price of \$37.75, is between 10:09 AM and 10:20 AM. During this 11 minute period, Merkin purportedly purchased 672,450 shares of Exxon Mobil Corporation, while only 328,500 shares were traded in the market.
326. Similarly, on August 12, 2003, BLMIS purportedly sold 280,904 shares of American International Group, across three Merkin accounts, for \$63.25 per share, exactly at the

³⁴¹ Sources include Settled Cash table and TICK Data market data.

daily high market price.³⁴² Figure 45 illustrates the high and low price for AIG, by minute, on August 12, 2003.

Figure 45
AIG Share Price and Volume on August 12, 2003
Market vs. Merkin BLMIS Accounts³⁴³



327. As shown in Figure 45 above, the only time period where the range of share prices

³⁴² Share price excludes commissions of \$0.04 per share. Sources include Settled Cash table and Bloomberg market data.

³⁴³ Sources include Settled Cash table and TICK Data market data.

included the purported Merkin price of \$63.25, is between 15:56 (3:56 PM) and 16:01 (4:01 PM). During this 5 minute period, BLMIS purportedly sold 280,904 shares of AIG, while only 102,300 shares were traded in the market.

328. BLMIS's purported purchase and sale of equities at volumes larger than the total daily traded volume at the price reported by BLMIS was a significant red flag and the only reasonable explanation was fraud.

b) Market Timing

329. Market timing, which could have contributed to the returns purportedly generated by BLMIS, is shown in Figure 42 to have actually contributed very little (1.9%) to the returns for the Merkin BLMIS Accounts.³⁴⁴ Madoff's purported success at timing the market (i.e., in the market when it goes up and out of the market when it goes down) does not appear to be any better than if he had flipped a coin to determine when to enter and exit the market.
330. I analyzed how the S&P 100 performed during the times when Madoff chose to enter and exit the market (i.e., during each of the 84 baskets). **Schedule 71** shows that out of the 84 baskets that Madoff purportedly entered into between December 1991 and November 2008, the S&P 100 was up only 45 times, or only 54% of the time.³⁴⁵ The other 46% of the time (i.e., the majority of the time) Madoff entered and exited the market during a time period when the S&P 100 fell. It is clear from the data that Madoff was not successful at market timing.³⁴⁶

³⁴⁴ Merkin Dep. 158:12-167:13, February 24, 2015; Autera Dep. 171:9-22, October 19, 2011; *New York v. Ascot Partners, LP et al.*, Merkin Dep. 150:11-19, July 1, 2010; *N.Y.U. v. Ariel Fund Ltd. et al.*, Merkin Dep. 137:17-22, February 9, 2009.

³⁴⁵ See Figure 41.

³⁴⁶ Given Madoff's lack of success at market timing, Madoff was deriving little market timing benefit from any black box/algorithm or potential order flow of the broker-dealer business that was part of BLMIS's Proprietary Trading Business. Merkin Dep. 159:7-18, 166:4-167:13, February 24, 2015

c) Stock Picking

331. In addition to the analyses underlying Figure 42, I also considered whether the performance in the Merkin BLMIS Accounts was a result of “stock picking,” i.e., picking stocks within the S&P 100 that performed better than others. I reviewed the returns of the stocks in each basket in the Merkin BLMIS Accounts as compared to the returns of the S&P 100 over the purported investment period for each basket, and found that Madoff was no better at “stock picking” than he was at market timing. The stocks in only 17 out of 52 baskets (i.e., 33%) outperformed the S&P 100. (*See Schedule 72.*)

5. Scenario Analysis: Greater than the Maximum

332. Consistent with due diligence customs and practices, I also performed scenario analysis on the Merkin BLMIS Accounts. Scenario analysis is a comparison of the potential ranges of outcomes associated with the implementation of a specific set of trades (e.g., following a particular strategy) to the actual results from executing the strategy. Any deviation from the range of possibilities would be a red flag that the investment advisor was not implementing the stated strategy.

333. Beginning in 1991, The Madoff SSC strategy utilized baskets, representing the simultaneous purchase of stocks in the S&P 100, sale of call options on the S&P 100 Index, and purchase of put options on the S&P 100 Index. The strike price for each option provides constraints on the possible range of returns at the initiation of each trade, i.e., the collar. The downside is limited by the put option strike price, and the upside is limited by the call option strike price.³⁴⁷

334. To execute my scenario analysis, I calculated the hypothetical minimum and maximum returns for a given trade using the strike prices.³⁴⁸ The following analysis concerns account 1A0058 (Ascot) where 83 basket trades occur over a 16 year period (1993-

³⁴⁷ *Jesselson v. Merkin*, Hearing Transcript 691:11-692:25, September 13, 2011.

³⁴⁸ *New York v. Ascot Partners, L.P. et al.*, Merkin Dep. 115:16-116:12, July 1, 2010.

2008).³⁴⁹ Because the Madoff SSC strategy purportedly used a basket of S&P 100 stocks that was highly correlated with the S&P 100, my analysis uses the daily S&P 100 Index price as a proxy for the basket of stocks.³⁵⁰

335. Calculating minimum and maximum returns first required establishing the baskets on which I would perform the analysis. After reviewing the purported trading history, I eliminated baskets where the equity position size increased or rollover occurred, i.e., the options expired, over the life of the basket.³⁵¹ Based on this requirement, I eliminated 67 of the 83 baskets. The remaining 16 “simple” baskets were entered into over a few days, with different strike prices on the options and different prices for the equity securities. Therefore, for each basket in my analysis I used the share-weighted average price for the S&P 100 Index, and the share-weighted average strike prices for the call and put options.³⁵²
336. Figure 46 illustrates the hypothetical minimum returns, hypothetical maximum returns, and returns purportedly generated for Ascot’s BLMIS account for the 16 simple baskets. The vertical lines represent the range of the minimum and maximum returns while the triangles represent the returns purportedly generated for Ascot’s BLMIS account.

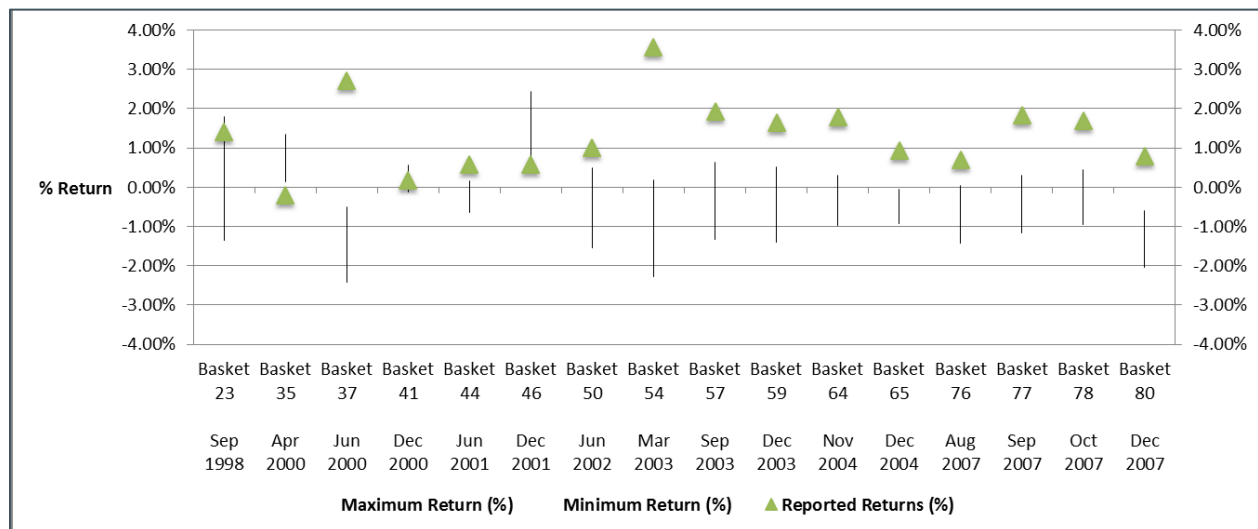
³⁴⁹ Trustee Ex. 363 (GCC-P 0393600-607); MF00435941; *In re Madoff Charities Investigation*, Merkin Dep. 91:17-93:9, 103:8-14, January 30, 2009.

³⁵⁰ Trustee Ex. 360 (Trading Authorization Directive, October 22, 2002) (GCC-SEC 0027370-381).

³⁵¹ A rollover occurs when options expire before the basket of stocks is sold (*i.e.*, the basket is unwound), and new options are purportedly purchased to replace the expiring options.

³⁵² I calculated hypothetical returns as the difference between the weighted strike prices and the weighted equity price multiplied by the number of underlying S&P 100 Index shares, less the net cost of the option proceeds.

Figure 46
Hypothetical Minimum, Hypothetical Maximum and Ascot's Reported Returns³⁵³



337. As Figure 46 illustrates, 14 out of the 16 baskets have reported returns outside of the hypothetical minimum-maximum range. These baskets were not concentrated in any particular time period, but rather occurred over time between 1998 and 2008.³⁵⁴ Madoff's purported ability to generate returns outside of the hypothetical range of possibilities was further evidence that he was not executing the Madoff SSC strategy. This should have prompted additional quantitative due diligence on the purported execution of the strategy, including performance attribution, reverse engineering and alpha analysis. As discussed in Sections VI.D.4, VI.B.2 and VI.B.1, due diligence in these areas would have revealed significant red flags where the only reasonable explanation was fraud.

³⁵³ Sources include Settled Cash table and Bloomberg market data.

³⁵⁴ There were three simple baskets in 2000, two in 2001, one in 2002, three in 2003, two in 2004, and three in 2007.

E. Price

338. The fees charged by an investment advisor are key components of the investment management process.³⁵⁵ Fees for investment advisors typically consist of management fees and/or performance fees. It is both customary and essential that the compensation structure be created in a way so as to align the interests of the advisor and the Fund Manager.

1. BLMIS's Operational and Fee Structures Were Atypical

339. Based on my experience, BLMIS's operational structure was atypical, suspicious, and inconsistent with industry customs and practices. Though often compared to a hedge fund,³⁵⁶ BLMIS did not technically fit the model of a hedge fund, a mutual fund, or any other traditional investment advisory model. Madoff chose to run his investment advisory operation through the use of what are called managed accounts, where each client received their own account number, customer statements, trade confirmations, and any other account-related communications.³⁵⁷

340. One of the primary benefits of a managed account is that it offers customers a high degree of customization and transparency. That is, the investment advisor, or money manager, has the ability to customize an investment strategy for a particular client. As a result, different managed accounts typically have different strategies, each reflecting the risk profile of the client. However, the Madoff SSC strategy was not customized to the individual customers. Madoff purportedly implemented the same strategy across multiple BLMIS investment advisory accounts, including the Merkin BLMIS

³⁵⁵ See, e.g., E-mail from Merkin to Rick Annis, et. al, September 7, 2005 (BS00224244).

³⁵⁶ *Jesselson v. Merkin*, Hearing Transcript 388:2-5, September 13, 2011.

³⁵⁷ Trustee Ex. 363 (GCC-P 0393127).

Accounts.³⁵⁸

341. It is highly inefficient for an investment advisor following the same investment strategy across multiple accounts to implement the strategy using managed accounts instead of a pooled account³⁵⁹ or a fund structure. For example, the operational execution of the Madoff SSC strategy was made more challenging and more costly by the use of managed accounts instead of a fund structure. Because of how the strategy was purportedly executed, numerous documents were created and mailed throughout the year. Considering trade confirmations alone, BLMIS would have generated over 11,000 trade confirmations between 2004 and 2008, assuming 23 customers and 5 baskets a year of 47 stocks.³⁶⁰ Assuming this level of activity over a ten year period doubles the number to over 22,000 trade confirmations.
342. BLMIS could have avoided printing and sending tens of thousands of trade confirmations had a fund structure been adopted for purposes of executing the strategy. As a result, BLMIS incurred significantly more administrative costs than if it had been structured as a fund. By choosing not to use a collective vehicle structure, like a hedge fund or mutual fund, BLMIS incurred significant additional operational costs and denied BLMIS the economic benefit of economies of scale, ever-present in the investment management industry.³⁶¹ The fact that Madoff employed an operational structure that is significantly more costly than industry norms (costs borne by BLMIS and not customers) was suspicious and a red flag because it is inconsistent with industry customs and practices.

³⁵⁸ Trustee Ex. 363 (GCC-P 0393600-607); MF00435941; *In re Madoff Charities Investigation*, Merkin Dep. 91:17-93:9, 103:8-14, January 30, 2009.

³⁵⁹ A pooled account is a collection of individual accounts administered as one account.

³⁶⁰ BLMIS's ADV form from 2008 indicated 23 customers. SEC Form ADV, Bernard L. Madoff Investment Securities, January 7, 2008 (PUBLIC0003834 at 840). Between 2004 and 2008 the Merkin BLMIS Accounts averaged 5 baskets per year and 47 stocks per basket. $11,000 = [47(\text{stocks}) + 2(\text{options})] * 2 (\text{buy and sell}) * 5 (\text{baskets}) * 23 (\text{customers})$.

³⁶¹ See Trustee Ex. 363 (Transcript of Conversation Between Madoff and Merkin, January 14, 2002) (GCC-P 0393369); Merkin Dep. 480:19-481:12, February 25, 2015.

343. Further, while BLMIS's operational structure was significantly more costly than a traditional fund structure, the fees that BLMIS purportedly collected were significantly lower than those that would have been charged in a traditional fund structure. An investment advisor like BLMIS would typically charge both management and incentive fees, while BLMIS only charged transaction fees. BLMIS's fee structure was an extreme departure from industry customs and practices.
344. Hedge funds typically charge two types of fees for managing a client's assets: management fees and performance fees.³⁶² The management fees compensate advisors for managing the portfolio. The performance fees compensate the advisor for successful performance. Fees incurred by the advisor to pay broker-dealers for trading securities, as well as other expenses, are either charged to investors directly, or can be recovered through management fees.
345. A common industry fee structure for an investment advisor is the "1-and-20" structure, consisting of a management fee of 1% of AUM and a performance fee of 20% of profits.³⁶³ This fee structure typically varies depending on an advisor's experience and customer "demand" to "get in on" a particular fund. Profits can consist of actual net profits for the relevant period or profits in excess of a certain benchmark over the relevant period, such as the London Interbank Offer Rate ("LIBOR").
346. BLMIS, however, did not charge any fees based on AUM or on performance. Instead, BLMIS merely charged a commission for executing trades. This was the only fee that was supposedly charged to customers.³⁶⁴ While this transaction based, commission-only structure is consistent with services provided by simple broker-dealers, BLMIS was serving customers, including the Defendant Funds, as an investment advisor, not a

³⁶² John C. Hull, *Options, Futures, and Other Derivatives* 9 (Prentice Hall: New Jersey, 6th Edition 2006). *Jesselson v. Merkin*, Hearing Transcript. 388:2-5, September 13, 2011.

³⁶³ Harrington Dep. 94:16-20, October 1, 2013.

³⁶⁴ Madoff charged nothing for his strategy/investment management services.

broker-dealer, and this fee structure is simply not used by investment advisors. One reason, among others, is that charging fees in this manner can lead to a conflict of interest. If an investment advisor is compensated based on the number of transactions, it creates an incentive for more frequent trading without necessarily maximizing returns (i.e., “churning”).

347. Additionally, approximately 95% of investment advisors registered with the SEC are not broker-dealers.³⁶⁵ None of these investment advisors would ever make any money if they only charged fees to cover the trade commissions charged to them by broker-dealers for executing trades. To the extent that BLMIS was only recovering the trade commission costs, BLMIS was not generating any profit as an investment advisor.
348. BLMIS’s fee structure was a red flag because it was inconsistent with industry customs and practices.

2. Commissions vs. Fees under 1-and-20 Fee Structure

349. BLMIS reportedly charged commissions of \$0.04 per share for equities and \$1.00 per contract for options.³⁶⁶ From 1990 to September 2006, the commissions were reflected directly in the reported share prices.³⁶⁷ After BLMIS registered as an RIA in September 2006, the commissions are reflected directly on BLMIS customer statements and trade confirmations. On the customer statements the charge of \$0.04 per share for equities is rounded down to the dollar for each transaction and excludes shares in treasuries or

³⁶⁵ U.S. Securities and Exchange Commission, Study on Investment Advisers and Broker-Dealers (January 2011). The percent of investment advisors who are not registered with the SEC and are also not broker-dealers is likely even higher than 95%.

³⁶⁶ Trade Confirmation for Ascot Partners LP (account number 1-A0058-3) (Trade Date October 24, 2006) (GCC-P0515226 at 226); Trade Confirmation for Ascot Partners LP (account number 1-A0058-4) (Trade Date October 24, 2006) (GCC-P0515290); BLMIS Trade Confirmation for Ascot Partners LP (account number 1-A0058-4) (Trade Date April 18, 2008) (BS00008481 at 481).

³⁶⁷ Prior to September 2006, BLMIS did not identify commissions on customer statements. However, the trade confirmations state that the trade price includes a commission of \$.04 per share for equities. For this analysis, I have assumed that options were treated the same way prior to 2006 with a commission of \$1.00 per contract.

money markets.

350. Applying this commission structure to the purported trades in the Merkin BLMIS Accounts, the Defendant Funds would have been charged approximately \$139 million in commissions to BLMIS between 1996 and 2008, with average annual commissions during this period of approximately \$10.7 million per year. This equates to approximately 0.8% of average AUM over this time period.³⁶⁸ This was significantly less than a typical investment advisor would have charged had a more typical fee structure been in place. For example, the Defendant Funds paid fees of 1% of net capital and 10% of profits in excess of a benchmark to Cohanzick for managing assets for Gabriel.³⁶⁹ This fee structure is significantly more than the 0.8% of average AUM paid by the Defendant Funds to BLMIS.
351. If BLMIS had utilized a “1-and-20” fee structure, the Defendant Funds would have paid annual management fees of 1% of AUM and performance fees of 20% of annual net gains. A “1-and-20” fee structure would have been typical and was, for example, what Ariel and Gabriel charged their investors.³⁷⁰
352. Assuming this 1-and-20 fee structure, the Defendant Funds would have paid BLMIS an average of \$37.7 million in fees per year, totaling \$490.6 million between 1996 and 2008.³⁷¹ Figure 47 highlights the fees that the Defendant Funds could have been paying under a different fee structure.

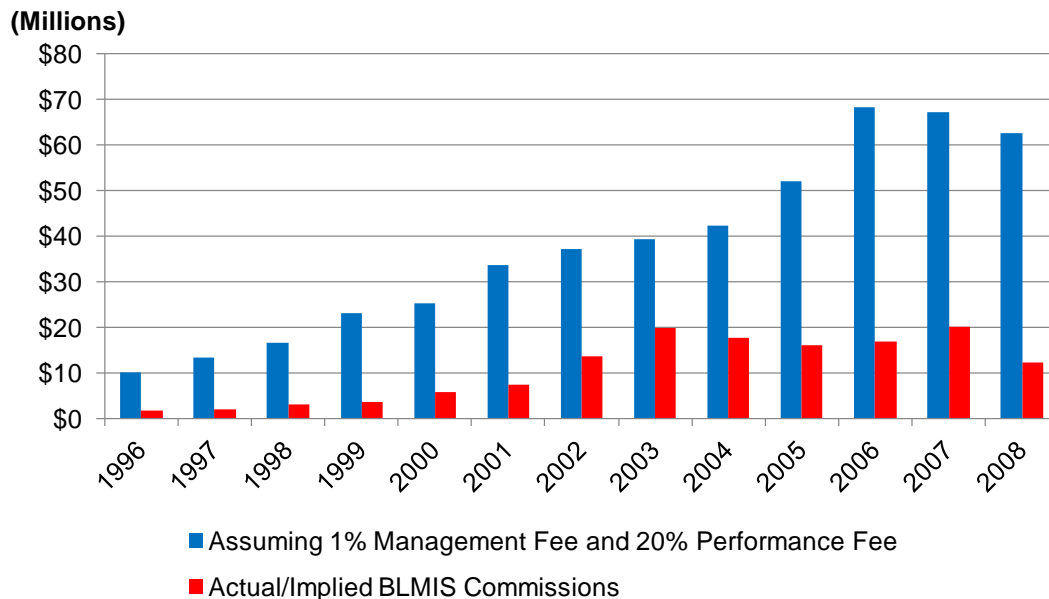
³⁶⁸ Only 7 of the 2,852 (0.2%) funds in the BarclayHedge database with an investment strategy categorized as either (i) equity market neutral; (ii) equity long/short; or (iii) equity long-bias charged a management fee of less than 1% with no performance fee.

³⁶⁹ “Term Sheet between Gabriel and Cohanzick – August 9, 2002” (signed August 12, 2002) (BS00305554 at 55).

³⁷⁰ *New York v. Ascot Partners, LP et al.*, Merkin Dep. 18:3-16, March 3, 2010; Gabriel Capital Group Marketing Presentation (October 2008) (BS00041099 at 1116).

³⁷¹ Sources include StorQM Customer Statements.

Figure 47
Commissions vs. Fees under 1-and-20 Fee Structure³⁷²



353. On average, the Defendant Funds paid \$27 million less per year under the commission fee structure than they would have paid under a typical 1-and-20 structure. The fact that BLMIS passed on \$351.2 million (i.e., \$490.6 less \$139.5)³⁷³ in fees from the Defendant Funds alone was suspicious and a red flag because it was inconsistent with industry customs and practices.

F. Due Diligence Triggers

354. As discussed above in Section V.A.2, once invested, ongoing/monitoring due diligence should include both proactive due diligence and reactive due diligence. All of the proactive and reactive due diligence analyses discussed above in the Five Ps would have

³⁷² Sources include StorQM Customer Statements.

³⁷³ This difference is not net of expenses. With a traditional fund structure, such as a mutual fund or hedge fund, many administrative and operational expenses would be paid for by fund assets. Therefore, if BLMIS had used a fund structure, the difference net of expenses would have been greater.

been appropriate as part of ongoing/monitoring due diligence on the Merkin BLMIS Accounts. Additionally, due diligence triggers occur when information from a third-party raises concerns about a particular investment. It is custom and practice for Fund Managers to perform due diligence when due diligence triggers arise that cast doubt on a particular investment.

355. The following due diligence triggers are examples of when information was shared regarding BLMIS and the Madoff SSC strategy that, consistent with industry customs and practices, would have caused a Fund Manager invested with BLMIS to perform additional due diligence.

1. Issues Raised by Colleagues and Investors

356. Anytime new issues are raised by colleagues or investors that relate to concerns about an investment advisor, it is industry custom and practice for the Fund Manager to perform due diligence, to the extent not already performed. The due diligence is necessary to ensure that the Fund Manager continues to be comfortable with where they have placed investor assets in light of the new information. If the individual sharing the information is trusted or valued by the Fund Manager, the Fund Manager may perform due diligence regardless of whether any prior comfort had been reached regarding the specific concern. As discussed above, due diligence is a continuing activity that should be performed throughout the life of an investment.
357. The following are two examples where issues were raised by a colleague and an investor in the Defendant Funds.

a) Victor Teicher

358. Victor Teicher was a portfolio manager who managed assets for Ariel and Gabriel, and he testified that as early as 1992/1993 he discussed with Merkin the consistency of

Madoff's returns and "felt that [what Madoff was doing] was just not possible."³⁷⁴

Teicher suggested to Merkin that he should not invest with Madoff and reiterated these concerns to Merkin over the years.³⁷⁵ Teicher discussed with Merkin that "the Madoff track record didn't sound right, didn't smell right."³⁷⁶ Another concern Teicher raised was that Madoff self-cleared, which left "room for misrepresentations," noting that "[t]here have been cases in the past that were frauds that the people were self-clearing."³⁷⁷ A concern that Teicher may have raised with Merkin was that "there's no check that...what you've been told has been done has actually been done."³⁷⁸ In addition, Teicher mentioned to Merkin the issue of delayed trade confirmations.³⁷⁹

359. Had information such as this been shared in 1993, for example, it would have been industry custom and practice to perform due diligence related to the concerns, to the extent not already performed. For example, by the end of 1993, due diligence consistent with industry customs and practices, as discussed above within the Five Ps framework, would have revealed the following red flags related to the Merkin BLMIS Accounts.

(1) **Process**

- **Impossible Option Volume:** By the end of 1993, there had already been 21 unique call transactions and 22 unique put transactions purportedly traded across the Merkin BLMIS Accounts that exceeded the total market volume traded that day, representing approximately 18% and 17%, respectively, of the unique call

³⁷⁴ *N.Y.U. v. Ariel Fund Ltd. et al.*, Teicher Dep. 40:25-41:15, February 9, 2009; Teicher Dep. 51:1-52:10, October 29, 2013; Mayer Dep. 64:14-65:4, October 11, 2011. E-mail from Reid Nagle of SNL Investors to Beth Kaswan, January 9, 2009 (BS00037818 at 818) (Teicher reportedly "told anyone who would listen...that Madoff was a fraud.").

³⁷⁵ Teicher Dep. 108:21-109:7, October 29, 2013; *N.Y.U. v. Ariel Fund Ltd. et al.*, Teicher Dep. 42:21-43:7, 48:6-12, February 9, 2009.

³⁷⁶ Teicher Dep. 109:2-7, October 29, 2013; *see also* Teicher Dep. 51:6-8, October 29, 2013.

³⁷⁷ *N.Y.U. v. Ariel Fund Ltd. et al.*, Teicher Dep. 44:18-45:7, February 9, 2009; *see also* Teicher Dep. 111:22-113:15, October 29, 2013.

³⁷⁸ *N.Y.U. v. Ariel Fund Ltd. et al.*, Teicher Dep. 45:2-7, February 9, 2009.

³⁷⁹ *N.Y.U. v. Ariel Fund Ltd. et al.*, Teicher Dep. 49:13-16, February 9, 2009.

and put transactions purportedly traded for the Merkin BLMIS Accounts to that point.

- **Out-of-Range Trades:** By the end of 1993, there had been 124 equity transactions and 152 option transactions across the Merkin BLMIS Accounts that reported prices outside of the daily price range.
- **Unexplained Exposure to Market Risk:** By the end of 1993, on at least 82 occasions, statements for the Merkin BLMIS Accounts had reflected changes to the basket of equities purportedly purchased for the Merkin BLMIS Accounts, but failed to reflect corresponding changes to the options used to hedge the equity position.
- **Style Drift:** Madoff counter-intuitively switched from a single stock Madoff SSC strategy to a basket-based Madoff SSC strategy.
- **Service Providers:** BLMIS was its own broker-dealer, custodian and administrator and did not use a well-known, well-established, and well-equipped auditor, creating an opportunity for fraud.
- **Investor Communications:** BLMIS's trade confirmations and customer statements were inconsistent with industry customs and practices.

(2) Portfolio

- **Alpha Analysis:** BLMIS's monthly returns through the end of 1993 generated an R-Squared of 0.02, indicating that changes in the S&P 500 only explain 2% of the change in Madoff's returns, despite the fact that the Madoff SSC strategy should be highly correlated to the S&P 500. BLMIS's monthly returns generated an alpha of 1.50%, meaning that on average the Merkin BLMIS Accounts are generating a return of 1.50% regardless of the returns generated by the S&P 500. The t-stat for the analysis is 10.56, indicating that Madoff generates a return of 1.50% (i.e., the alpha) with virtual certainty.

(3) People

- **Excessive Concentration of Duties:** BLMIS exhibited an excessive concentration of duties.
- **Lack of Credentials:** BLMIS had a limited number of personnel, with no advanced education or training, purportedly implementing a multi-billion dollar investment strategy.

- **Lack of Disclosures/Transparency:** BLMIS lacked typical disclosures/transparency provided by investment advisors.

b) Joel Ehrenkranz

360. It is industry custom and practice to perform additional due diligence when information received from an industry colleague, investor, and Fund Manager raises new concerns about an investment.
361. For example, in 1995, a Merkin investor and Fund Manager, Joel Ehrenkranz, testified that he redeemed his fund's investment in Ascot because "the stability of the returns began to belie any understanding of how it was possible to achieve."³⁸⁰ Ehrenkranz had also met with Madoff and Merkin in the early 1990s regarding a potential investment directly with BLMIS.³⁸¹ Ehrenkranz stated that one concern he had at the meeting was the lack of independent verification at BLMIS, stating "where's the independent verification?"³⁸² Madoff would not offer the independent verification, and Ehrenkranz did not invest directly with BLMIS.³⁸³
362. Typical industry customs and practices, upon investors redeeming and citing disbelief in returns, would have been to conduct additional due diligence into BLMIS and Madoff. Had additional due diligence been performed in 1995, certain red flags discussed above in the Five Ps would have been observed. For example, by 1995 the following concerns would have been evident with additional due diligence.

³⁸⁰ Ehrenkranz Dep. 64:22-65:18, March 20, 2014.

³⁸¹ Ehrenkranz Dep. 43:6-44:1, March 20, 2014.

³⁸² Ehrenkranz Dep. 48:4-12, March 20, 2014.

³⁸³ Ehrenkranz Dep. 52:14-19, March 20, 2014. Ehrenkranz stated that he eventually became comfortable with investing with Ascot (before redeeming in 1995) because Merkin told Ehrenkranz that Merkin's firm would handle the trade verification. Ehrenkranz Dep. 58:14-20, March 20, 2014.

(1) Process

- **Impossible Option Volume:** By the end of 1995, there had already been 25 unique call transactions and 25 unique put transactions purportedly traded across the Merkin BLMIS Accounts that exceeded the total market volume traded that day, representing approximately 12% and 12%, respectively, of the unique call and put transactions purportedly traded for the Merkin BLMIS Accounts to that point.
- **Out-of-Range Trades:** By the end of 1995 there had been 265 equity transactions and 247 option transactions across the Merkin BLMIS Accounts that reported prices outside of the daily price range.
- **Unexplained Exposure to Market Risk:** By the end of 1995, on at least 141 occasions, statements for the Merkin BLMIS Accounts had reflected changes to the basket of equities purportedly purchased for the Merkin BLMIS Accounts, but failed to reflect corresponding changes to the options used to hedge the equity position
- **Style Drift:** Madoff had counter-intuitively switched from a single stock SSC strategy to a basket based SSC strategy.
- **Speculative Options:** By the end of 1995, on at least 56 separate occasions, option transactions were used solely to generate a profit and not to hedge any equity transactions. These speculative option trades generated approximately \$6.7 million in profit and represented approximately 10.5% of the total dollar returns.
- **Service Providers:** BLMIS was its own broker-dealer, custodian and administrator and did not use a well-known, well-established, and well-equipped auditor, creating an opportunity for fraud.
- **Investor Communications:** BLMIS's trade confirmations and customer statements were inconsistent with industry customs and practices.

(2) Portfolio

- **Alpha Analysis:** BLMIS's monthly returns through the end of 1995 generated an R-Squared of 0.04, indicating that that changes in the S&P 500 only explain 4% of the change in Madoff's reported returns, despite the fact that the Madoff SSC strategy should be highly correlated to the S&P 500. BLMIS's monthly returns generated an alpha of 1.41%, meaning that on average the Merkin BLMIS

Accounts are purportedly generating a return of 1.41% regardless of the returns generated by the S&P 500. The t-stat for the analysis is 12.28, indicating that Madoff purportedly generates a return of 1.41% (i.e., the alpha) with virtual certainty

(3) People

- **Excessive Concentration of Duties:** BLMIS exhibited an excessive concentration of duties.
- **Lack of Credentials:** BLMIS had a limited number of personnel, with no advanced education or training, purportedly implementing a multi-billion dollar investment strategy.
- **Lack of Disclosures/Transparency:** BLMIS lacked typical disclosures/transparency provided by investment advisors.

(4) Performance

- **Correlation Analysis:** From December 1991 through 1994, the reported returns for the Merkin BLMIS Accounts displayed a correlation coefficient with the S&P 100 of 0.60, dramatically less than the expected correlation of 0.92.

2. Negative Press Coverage

363. In May 2001, two articles were circulated that questioned the legitimacy of BLMIS's returns.³⁸⁴ While media publications are routinely reviewed in the industry, and can create headline risk (i.e., the risk that a story will spread throughout various media publications, and negatively impact the investment advisor), news stories are not indicia of fraud in and of themselves. Nevertheless, when articles like these are published, industry customs and practices are that additional due diligence be conducted.

364. The first article was published in May 2001 in *MAR/Hedge* titled "Madoff tops charts;

³⁸⁴ Merkin testified that he read both of these articles. *New York v. Ascot Partners, LP et al.*, Merkin Dep. 348:25-329:11, March 4, 2010.

skeptics ask how.”³⁸⁵ Highlights from the article include, but are not limited to, the following:

- Madoff is supposedly running one of the largest and most successful hedge funds in the world, based on historical returns;³⁸⁶
- The opinions of a dozen industry professionals indicate that the Madoff SSC strategy would not produce the degree of returns Madoff purportedly attained in the early 1990s to 2001. A few reasons included: (i) the fact that Madoff’s returns had little to no volatility compared to firms that implemented a similar trading strategy; (ii) Madoff seemed to consistently be able to “time the market” perfectly; and (iii) not one person or firm was able to duplicate his strategy (including Gateway, a mutual fund following an SSC strategy);³⁸⁷ and
- A few of the contacted experts claimed Madoff must have been using financial instruments outside of the S&P 100—or something different than what Madoff customers, including the Defendant Funds, were being told.
- Madoff also explained his strong returns by citing a low-to-no fee structure, stating that BLMIS was “just happy” to make trading commissions.

365. Around the same time period Merkin received another article covering similar red flags related to BLMIS, this one published in *Barron’s* and titled “Don’t Ask, Don’t Tell: Bernie Madoff is so secretive, he even asks his investors to keep mum.”³⁸⁸ Highlights

³⁸⁵ Trustee Ex. 363 (Michael Ocrant, *Madoff Tops Charts; Skeptics Ask How*, MAR/HEDGE, May 2001) (GCC-P 0393336-339).

³⁸⁶ Trustee Ex. 363 (Michael Ocrant, *Madoff Tops Charts; Skeptics Ask How*, MAR/HEDGE, May 2001) (GCC-P 0393336-339). The article noted that although Madoff did not provide the amount of Assets Under Management (AUM) in his fund, he did not dispute that the AUM was around \$6 - \$7 billion as of 2001.

³⁸⁷ Trustee Ex. 363 (Michael Ocrant, *Madoff Tops Charts; Skeptics Ask How*, MAR/HEDGE, May 2001) (GCC-P 0393336-339).

³⁸⁸ Trustee Ex. 363 (Erin Arvedlund, *Don’t Ask, Don’t Tell: Bernie Madoff is so secretive, he even asks his investors to keep mum*, BARRON’S, May 2001) (GCC-P 0393344-345). Victor Teicher also discussed this article with Merkin “right away,” highlighting concerns regarding Madoff’s secrecy. Teicher Dep. 132:14-133:22, October 29, 2013.

from the article include, but are not limited to:

- BLMIS had been averaging returns of 15% per year for more than a decade and never had a down year. When Madoff was asked how he accomplished such a feat, he stated “[i]t’s a proprietary strategy. I can’t go into it;”
- Certain industry professionals responded to BLMIS’s remarkable returns by suggesting that Madoff’s market-making operation “subsidizes and smooths [Madoff’s] hedge-fund returns.” The article explained the way in which this could occur, stating that Madoff’s broker-dealer “stands in the middle of a tremendous river of orders.” However, if Madoff’s broker-dealer were trading securities ahead of its clients that would have been front-running, which would have been a fraudulent operation;
- Three options strategists at major banks could not understand Madoff’s returns via the Madoff SSC strategy. A former Madoff customer is quoted as saying that any “seasoned hedge fund investor knows the split-strike strategy is not the whole story;” and
- Madoff’s refusal to charge fees for his money management services or fees on money he managed in private accounts remained a mystery.

366. Typical industry customs and practices, upon reading these articles, would have been to conduct additional due diligence into BLMIS and Madoff to understand whether the concerns raised in the articles were cause for pulling investments from BLMIS. Had additional due diligence been performed in 2001 certain red flags discussed above in the Five Ps would have been observed. For example, by May 2001 the following concerns would have been evident with additional due diligence.

a) Process

- **Impossible Option Volume:** By May 2001, there had already been 101 unique call transactions and 66 unique put transactions purportedly traded across the Merkin BLMIS Accounts that exceeded the total market volume traded that day,

representing approximately 23% and 16%, respectively, of the unique call and put transactions purportedly traded for the Merkin BLMIS Accounts to that point.

- **Out-of-Range Trades:** By May 2001, there had been 501 equity transactions and 299 option transactions across the BLMIS Merkin Accounts that reported prices outside of the daily price range on the.
- **Unexplained Exposure to Market Risk:** By May 2001, on at least 230 occasions, statements for the Merkin BLMIS Accounts had reflected changes to the basket of equities purportedly purchased for the Merkin BLMIS Accounts, but failed to reflect corresponding changes to the options used to hedge the equity position.
- **Style Drift:** Madoff had counter-intuitively switched from a single stock SSC strategy to a basket based SSC strategy.
- **Speculative Options:** By May 2001, on at least 120 separate occasions, option transactions were used solely to generate a profit and not to hedge any equity transactions. These speculative option trades generated approximately \$20.0 million in profit and represented 4.1% of the total dollar returns.
- **Service Providers:** BLMIS was its own broker-dealer, custodian and administrator and did not use a well-known, well-established, and well-equipped auditor, creating an opportunity for fraud.
- **Investor Communications:** BLMIS's trade confirmations and customer statements were inconsistent with industry customs and practices.

b) Portfolio

- **Alpha Analysis:** BLMIS's baskets for the year 2001 generated an R-Squared of 0.32, indicating that that changes in the S&P 100 only explain 32% of the change in Madoff's reported returns, despite the fact that the Madoff SSC strategy should be highly correlated to the S&P 100. BLMIS's baskets generated an alpha of 3.15%, meaning that on average the Merkin BLMIS Accounts are purportedly generating a return of 3.15% regardless of the returns generated by the S&P 100. The t-stat for the analysis is 9.67, indicating that Madoff purportedly generates a return of 3.15% (i.e., the alpha) with virtual certainty.

c) People

- **Excessive Concentration of Duties:** BLMIS exhibited an excessive concentration of duties.

- **Lack of Credentials:** BLMIS had a limited number of personnel, with no advanced education or training, purportedly implementing a multi-billion dollar investment strategy.
- **Lack of Disclosures/Transparency:** BLMIS lacked typical disclosures/transparency provided by investment advisors.

d) Performance

- **Peer Analysis:** By May 2001, the Merkin BLMIS Accounts had purportedly outperformed every fund in the Hedge Fund Peer Group for the 10 year period ending 2000.
- **Market Stress:** The Merkin BLMIS Accounts purportedly outperformed the market in periods of market stress, including the 1998 Long Term Capital Management loss and the 2001 Tech Bubble Burst.
- **Correlation Analysis:** From December 1991 through April 2001, the reported returns for the Merkin BLMIS Accounts displayed a correlation coefficient with the S&P 100 of 0.40, dramatically less than the expected correlation of 0.63.
- **VWAP:** Between January 1996 and April 2001, 75.9% of purported buy transactions by share volume were executed below VWAP and 69.0% of purported sell transactions by share volume were executed above VWAP. On average, BLMIS purportedly bought shares \$0.70 per share below VWAP, while it purportedly sold shares \$0.62 per share above VWAP, which contributed to the significant gains created by trading above or below VWAP.
- **Performance Attribution:** For the year 2000, the contribution from market timing in the purported basket returns was negative 29.5%, meaning that the returns were negatively impacted by Madoff's decisions when to enter and when to exit the market.
- **Scenario Analysis:** By May 2001, 2 of BLMIS's baskets had reported returns outside of the hypothetical minimum-maximum range.

e) Price

- **Commissions vs. Fees Under 1-and-20 Fee Structure:** By May 2001, Madoff had left at least \$72.2 million on the table by purportedly charging only commissions rather than a typical 1-and-20 fee structure, one of the red flags

highlighted in the *Barron's* article.

3. Operational Failures at Other Funds

367. In connection with ongoing due diligence, and consistent with typical industry due diligence practices, when it is identified that specific operational failures at other funds facilitated fraud, additional due diligence should be triggered. Typically, investors will: (1) check all of their investments to determine any exposure to the specific fraud; and (2) review their entire investment portfolio to determine whether any of their investments exhibit similar operational failures. Over the course of the Defendant Funds' investments with BLMIS there was one fraud in particular, a Ponzi scheme, that was revealed and should have prompted Merkin to perform due diligence, due to the similarities between this fund and BLMIS.
368. In 2005 the Bayou Fund ("Bayou") was exposed as a Ponzi scheme. When Bayou collapsed there was significant coverage of the event, including discussions of the red flags associated with Bayou. For example, Merkin circulated (or had circulated to him) Bayou-related documents including: (i) a report by an investment management firm addressing red flags; (ii) articles addressing the need for due diligence, referencing Bayou; and (iii) communications from other investment managers who were invested with Bayou.³⁸⁹
369. Within days of Bayou being revealed, Merkin circulated a list of "Issues we should be asking each of our money managers."³⁹⁰ This list included: (i) "Clearing firm;" (ii)

³⁸⁹ Hennessee Group LLC Letter to clients regarding Bayou Fund, September 1, 2005 (BS00151989); Email from Merkin regarding Grosvenor Capital Bayou Special Report, September 8, 2005 (BS00151980); Email from Merkin regarding Silver Creek's investment in Bayou, August 30, 2005 (BS00188043); Email from Merkin sending David F. Swensen, *Invest at your Own Risk*, New York Times dated October 19, 2005 (October 20, 2005) (BS00225016); Grosvenor Capital Management Report Regarding Samuel Israel/Bayou Management LLC, September 7, 2005 (BS00151981).

³⁹⁰ E-mail from Merkin to Rick Annis, et. al, September 7, 2005 (BS00224244).

“Unusual, unconventional, or self-owned broker-dealer relationships;” (iii) “Auditing firm;” (iv) “Law Firm;” (v) “Use of leverage;” and (vi) “Pricing of fund.”³⁹¹

370. When a fraud is revealed in another fund it is industry custom and practice for Fund Managers to develop a list of risk factors to consider in connection with their investments. These risk factors should be considered for every investment in the portfolio. At least four of the problematic aspects of BLMIS that proper due diligence would have uncovered were also present in Bayou, and BLMIS customers who claimed familiarity with Bayou should have seen the similarities between the two.

371. The process-related concerns that were present in both Bayou and BLMIS include the following:

- **Consistent Returns:** One of the red flags highlighted by the Bayou fraud was that Bayou “sought to deliver consistent returns (1% - 3% per month).”³⁹² As one investment advisor stated in a report sent to Merkin, any such investment strategy “must be considered with great skepticism.”³⁹³ As discussed above, the returns for Merkin’s BLMIS Accounts were also remarkably consistent, and should have been considered with “great skepticism.”
- **Lack of a Well-Known and Established Auditor:** The red flag associated with BLMIS using Friebling & Horowitz as an auditor would have been even more pronounced at the time it was revealed that Bayou relied on a fabricated auditor in order to help perpetrate its fraud. Bayou represented that its financial transactions were certified by an independent public accounting firm called Richmond Fairfield (“Richmond”) from at least December 2000 through August 2005.³⁹⁴ In

³⁹¹ E-mail from Merkin to Rick Annis, et. al, September 7, 2005 (BS00224244).

³⁹² Grosvenor Capital Management Report Regarding Samuel Israel/Bayou Management LLC (September 7, 2005) (BS00151981).

³⁹³ Grosvenor Capital Management Report Regarding Samuel Israel/Bayou Management LLC (September 7, 2005) (BS00151981).

³⁹⁴ Complaint for Injunctive and Other Equitable Relief at 6, *Commodity Futures Trading Comm’n v. Bayou Mgmt. et al.* No. 05 Civ. 8374 (S.D.N.Y. Sept. 29, 2005), ECF No. 1.

actuality, Richmond was a fictional firm created by Bayou's management for the sole purpose of concealing the ongoing fraud. As part of perpetuating this fraud, the annual reports were fabricated, and office space was leased for the purposes of acquiring a mailing address and telephone number.³⁹⁵ As one investment advisor stated following the revelations in Bayou, "it is unlikely that [we] would have approved the use of an audit firm that is 'unknown' in the industry."³⁹⁶

- **Operations:** Similar to BLMIS, Bayou did not have an offering memorandum. It is industry custom and practice to maintain a marketing document providing detailed information regarding strategy, risks associated with the strategy, background on the investment advisor, and a detailed explanation of the fee structure.³⁹⁷
- **Internal Broker-Dealer:** The lack of a third-party broker-dealer was one of the red flags raised in the exposure the Bayou.³⁹⁸ The majority of trading activity at Bayou was transacted through Bayou Securities, a broker-dealer owned by Bayou.³⁹⁹ As discussed above, despite BLMIS having its own brokerage firm, not having a third-party prime broker raises a concern because the lack of third-party controls creates an opportunity for fraud.

372. These similarities between Bayou and BLMIS were all red flags that should have prompted due diligence consistent with industry customs and practices. Had additional due diligence been performed in 2005 certain red flags discussed above in the Five Ps

³⁹⁵ Complaint for Injunctive and Other Equitable Relief at 10-11, *Commodity Futures Trading Comm'n v. Bayou Mgmt. et al.* No. 05 Civ. 8374 (S.D.N.Y. Sept. 29, 2005), ECF No. 1.

³⁹⁶ Grosvenor Capital Management Report Regarding Samuel Israel/Bayou Management LLC (September 7, 2005) (BS00151981).

³⁹⁷ Government Accountability Office, *Hedge Funds: Regulators and Market Participants are Taking Steps to Strengthen Market Discipline, but Continued Attention is Needed* 27, Report to Congressional Requesters (January 2008). Mutual Funds also prepare prospectuses for potential investors with information similar to a hedge fund Private Placement Memorandum. Mutual fund prospectuses include information on investment strategy, fee structure, past performance, and the investment manager in charge of the fund.

³⁹⁸ Grosvenor Capital Management Report Regarding Samuel Israel/Bayou Management LLC (September 7, 2005) (BS00151981 at 984).

³⁹⁹ Complaint for Injunctive and Other Equitable Relief at 7, *Commodity Futures Trading Comm'n v. Bayou Mgmt. et al.* No. 05 Civ. 8374 (S.D.N.Y. Sept. 29, 2005), ECF No. 1.

would have been observed. For example, by 2005 the following red flags would have been evident with additional due diligence.

a) Process

- **Impossible Option Volume:** By September 2005, there had already been 292 unique call transactions and 232 unique put transactions purportedly traded across the Merkin BLMIS Accounts that exceeded the total market volume traded that day, representing approximately 44% and 38%, respectively, of the unique call and put transactions purportedly traded for the Merkin BLMIS Accounts to that point.
- **Out-of-Range Trades:** By August 2005 there had been 961 equity transactions and 362 option transactions across the Merkin BLMIS Accounts that reported prices outside of the daily price range.
- **Unexplained Exposure to Market Risk:** By August 2005, on at least 299 occasions, statements for the Merkin BLMIS Accounts had reflected changes to the basket of equities purportedly purchased for the Merkin BLMIS Accounts, but failed to reflect corresponding changes to the options used to hedge the equity position
- **Style Drift:** Madoff had counter-intuitively switched from a single stock SSC strategy to a basket based SSC strategy.
- **Speculative Options:** By August 2005, on at least 172 separate occasions, option transactions were used solely to generate a profit and not to hedge any equity transactions. These speculative option trades generated approximately \$67.4 million in profit and represented 6.2% of the total dollar returns.
- **Service Providers:** BLMIS was its own broker-dealer, custodian and administrator and did not use a well-known, well-established, and well-equipped auditor, creating an opportunity for fraud, similar to Bayou.
- **Investor Communications:** BLMIS provided paper statements on a time delay, rather than electronic statements. Additionally, BLMIS's trade confirmations and customer statements were inconsistent with industry customs and practices.

b) Portfolio

- **Alpha Analysis:** BLMIS's baskets from 2000 through the end of 2004 generated an R-Squared of 0.31, indicating that that changes in the S&P 100 only explain

31% of the change in Madoff's reported returns, despite the fact that the Madoff SSC strategy should be highly correlated to the S&P 100. BLMIS's baskets generated an alpha of 2.67%, meaning that on average the Merkin BLMIS Accounts are purportedly generating a return of 2.67% regardless of the returns generated by the S&P 100. The t-stat for the analysis is 11.25, indicating that Madoff purportedly generates a return of 2.67% (i.e., the alpha) with virtual certainty.

c) People

- **Excessive Concentration of Duties:** Similar to Bayou, BLMIS exhibited an excessive concentration of duties.
- **Lack of Credentials:** BLMIS had a limited number of personnel, with no advanced education or training, purportedly implementing a multi-billion dollar investment strategy.
- **Lack of Disclosures/Transparency:** BLMIS lacked typical disclosures/transparency provided by investment advisors.

d) Performance

- **Peer Analysis:** By August 2005, the Madoff SSC strategy for the Merkin BLMIS Accounts had outperformed, and often by a significant amount, every peer group, including the Hedge Fund Peer Group, the Mutual Fund Peer Group, Elite Investment Advisors, and Market Indices, across the performance metrics evaluated, across lengthy periods of time.
- **Market Stress:** The Merkin BLMIS Accounts generated returns of 45.9% between 2000 and 2002, while the S&P 100 and S&P 500 fell 43.9% and 40.1%, respectively. Similarly, the Merkin BLMIS Accounts outperformed the market in other periods of market stress, including the 1998 Long Term Capital Management loss, the 2001 Tech Bubble Burst, the September 11, 2001 terrorist attacks, the 2002 WorldCom bankruptcy, and the 2002-2003 U.S. invasion of Iraq.
- **Correlation Analysis:** From December 1991 through August 2005, the reported returns for the Merkin BLMIS Accounts displayed a correlation coefficient with the S&P 100 of 0.32, dramatically less than the expected correlation of 0.61.

- **VWAP:** Between January 1996 and August 2005, 81.4% of purported buy transactions by share volume were executed below VWAP and 76.8% of purported sell transactions by share volume were executed above VWAP. On average, BLMIS purportedly bought shares \$0.41 per share below VWAP, while it purportedly sold shares \$0.31 per share above VWAP, which contributed to the significant gains created by trading above or below VWAP.
- **Performance Attribution:** Between 2000 and the end of 2005, only 13.4% of purported basket returns were generated based on market timing.
- **Scenario Analysis:** Between January 2000 and August 2005, at least 11 of BLMIS's baskets had reported returns outside of the hypothetical minimum-maximum range.

e) **Price**

- **Commissions vs. Fees Under 1-and-20 Fee Structure:** By August 2005, Madoff had left at least \$165.7 million on the table by purportedly charging only commissions rather than a typical 1-and-20 fee structure.

G. Conclusion

373. Based on the analyses above, it is clear that due diligence consistent with industry customs and practices would have revealed numerous red flags relating to the Merkin BLMIS Accounts. There were certain transactions that were impossible and the only reasonable explanation was fraud. There were also numerous red flags relating to the Merkin BLMIS Accounts that were by their nature indicia of fraud, inconsistent with industry customs and practices, and/or inconsistent with Madoff's purported strategy, requiring additional qualitative and quantitative due diligence. Given the Defendant Funds' investment history with BLMIS that began in 1990, all of the red flags discussed above in the Five Ps would have been prevalent by 2002, could have been performed on Madoff, and would have revealed numerous red flags had they been performed as part of ongoing/monitoring due diligence. Furthermore, in addition to due diligence performed in the context of the Five Ps, there were, over the life of Merkin's investment with Madoff,

a number of examples where information was shared regarding BLMIS and the Madoff SSC strategy that, consistent with industry customs and practices, would have caused a Fund Manager invested with BLMIS to perform additional due diligence. These events are discussed above.

374. Together, the red flags discussed above, and the information that should have led to due diligence and the revelation of red flags, had little impact on the amounts invested in the Merkin BLMIS Accounts as they grew from \$27 million in AUM invested with BLMIS in 1990 to over \$2.0 billion AUM invested with BLMIS by 2008. *See* Appendix III for a chart showing the growth in AUM invested with BLMIS.

VII. Conclusion

375. In the investment management industry there are due diligence customs and practices that are typically performed. Due diligence consistent with these industry customs and practices would have revealed numerous red flags relating to the Merkin BLMIS Accounts. Based on industry customs and practices, my review of the documents in the record, my own analyses and experience, there were numerous quantitative and qualitative red flags, including impossibilities where the only reasonable explanation was fraud, indicia of fraud, indications that Madoff was not executing the purported strategy, inconsistencies with the strategy and inconsistencies with industry customs and practices.



Dr. Steve Pomerantz

March 20, 2015